VHF FM HANDHELD TRANSCEIVER

DJ-F1T/E DJ-S1T/E

UHF FM HANDHELD TRANSCEIVER

DJ-F4T/E DJ-S4T/E

Service Manual

CONTENTS

ALINCO ELECTRONICS INC.

■ SPECIFICATIONS

■ GENERAL

Frequency Coverage

F1T & S1T: TX: 144.000-147.995 MHz
RX: 138.000-173.995 MHz
(AM Mode 118 — 136 MHz after Modification)
F1E & S1E: TX: 144.000-145.995 MHz
RX: 144.000-145.995 MHz

F4T & S4T: TX: 440.000-449.995 MHz
RX: 410.000-470.000 MHz
F4E & S4E: TX: 430.000-440.000 MHz
RX: 430.000-440.000 MHz

Memory Channel 40 Channels + 1 Call Channel
Channel Steps 5, 10, 12.5, 15, 20, and 25 kHz
Standard Shift Frequency F1T/E & S1T/E: 600 kHz
F4T & S4T: 5 MHz
F4E & S4E: 7.6 MHz
(Resettable by 5 kHz [Minimum] between 0 and 15.995 MHz)
Emission Type F3
Antenna Impedance 50 Ω
Operating Voltage rated 9V
Microphone Impedance 2 kΩ
Speaker Impedance 8 Ω
Dimensions 110 (H) × 53 (W) × 37 (D) mm (4.3 × 2.1 × 1.5 inch)
(with Standard Battery Pack or Standard Dry Cell Battery Case without Projections)
Weight F1T/E & F4T/E Approx. 375 g (13.2 oz)
with Standard Battery Pack
S1T/E & S4T/E Approx. 370 g (13 oz)
with Standard Dry Cell Battery Case
Ground Negative

■ TRANSMITTER

Output Power

with Battery Pack EBP-16N (Standard for F1T/E & F4T/E)

Hi	Mid	Low
2 W (F1T/E & S1T/E) 1.5 W (F4T/E & S4T/E)	1 W	0.1 W

with Optional Battery Pack EBP-18N or at 13V

Hi	Mid	Low
5 W	1 W	0.1 W

with Dry Cell Battery Pack at 9V

Hi	Mid	Low
2.5 W (F1T/E & S1T/E) 2 W (F4T/E & S4T/E)	1 W	0.1 W

Modulation System Variable Reactance Frequency Modulation
Max. Freq. Deviation ±5 kHz
Spurious Emission Less than 60 dB below carrier
Microphone Built-in Electret Condenser

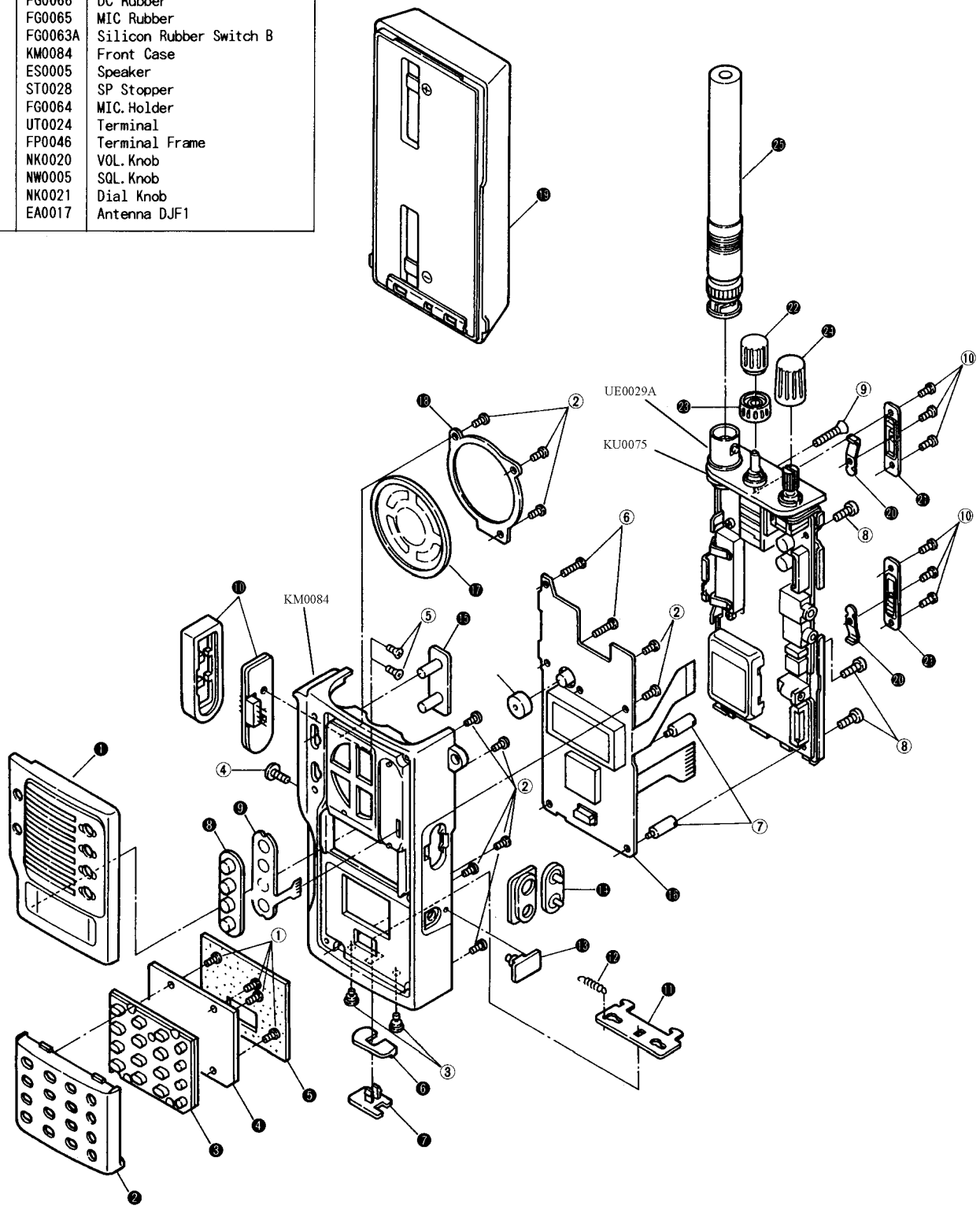
■ RECEIVER

Receiving System Double-conversion superheterodyne
Sensitivity 12 dB SINAD less than −15 dBμ
Intermediate Frequencies 1st 23.05 MHz
2nd 455 kHz

■DJ-F1T/E CABINET PARTS LOCATION

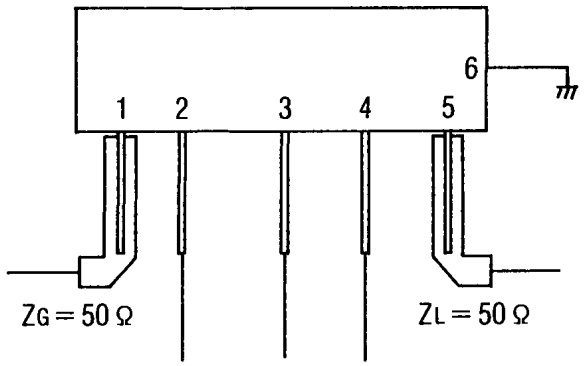
Mechanical Parts		
1	KM0121	Front Panel, F1T
	KM0081	Front panel DJ-S1
	KM0078	Front panel DJ-S1T
2	KM0114	Key Pad Panel
3	FG0069	Rubber Contact
4	UP0210	DJP3 key Board
5	FG0088	Anti-Water Drop Mat C
6	NB0041	Lock Knob
7	NB0040	Release Knob
8	FG0061A	Silicon Rubber Switch A
9	UP0198	SW P. O. Board
10	FG0058	PTT Rubber
11	FM0047	Release Plate
12	SC0005	Spring Coil
13	FG0066	DC Rubber
14	FG0065	MIC Rubber
15	FG0063A	Silicon Rubber Switch B
16	KM0084	Front Case
17	ES0005	Speaker
18	ST0028	SP Stopper
19	FG0064	MIC. Holder
20	UT0024	Terminal
21	FP0046	Terminal Frame
22	NK0020	VOL. Knob
23	NW0005	SQL. Knob
24	NK0021	Dial Knob
25	EA0017	Antenna DJF1

Screw		
1	AF0015	0# Screw 2+3 BC
2	AF0005	0# Screw 2+3.5 N
3	SA0009	Supporter For Release Switch
4	AA0039	Screw 2+6 BC
5	AA0037	Screw 2+4
6	AF0017	0# Screw 2+8 N
7	SA0008	Supporter For Lock
8	AA0036	Screw 2+5 N
9	AA0038	Screw(flat) 2+16N
10	AF0016	0# Screw 2+2 BC



■M67748L1 (MAIN UNIT IC-201)

1 : INPUT
2 : PREDRIVE + B
3 : BIAS + B
4 : FINAL + B
5 : OUTPUT
6 : GAD (FIN)

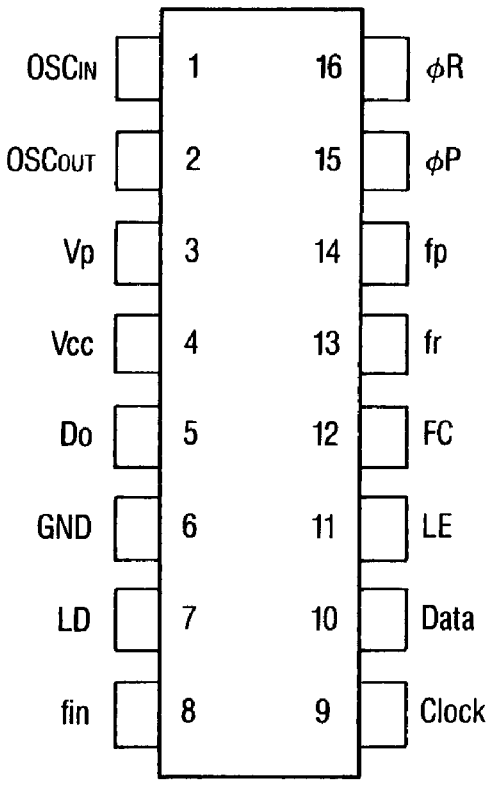


Electrical Characteristics

ITEM	SYMBOL	Tc (°C)	CONDITION	RATING			UNIT
				MIN.	TYPE	MAX.	
Output power	Po	25	f = 135-150MHz, P_{in} = 20mW, V_{cc} = 12.5V, V_{bb} = 5V, $Z_g = Z_l$ = 50Ω	7			W
Total efficiency	ηT	25	(ditto)	45			%
2nd spurious	2fo	25	(ditto)			−20	dB
3rd spurious	3fo	25	(ditto)			−25	dB
Input SWR	pin	25	(ditto)			2.5	—
Output SWR	pout	25	(ditto)		1.5		—

■MB1504L (MAIN UNIT IC-202)

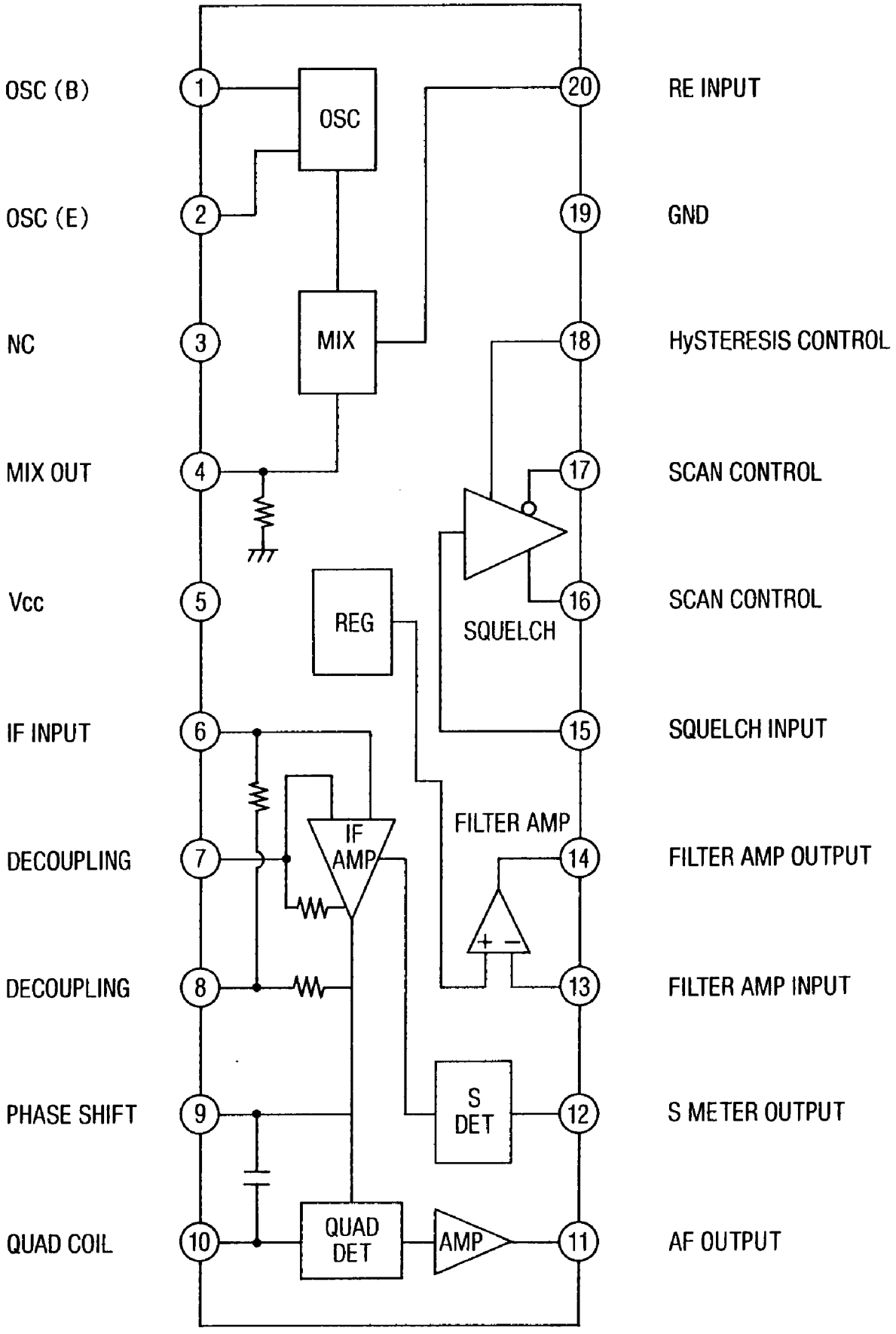
(TOP VIEW)



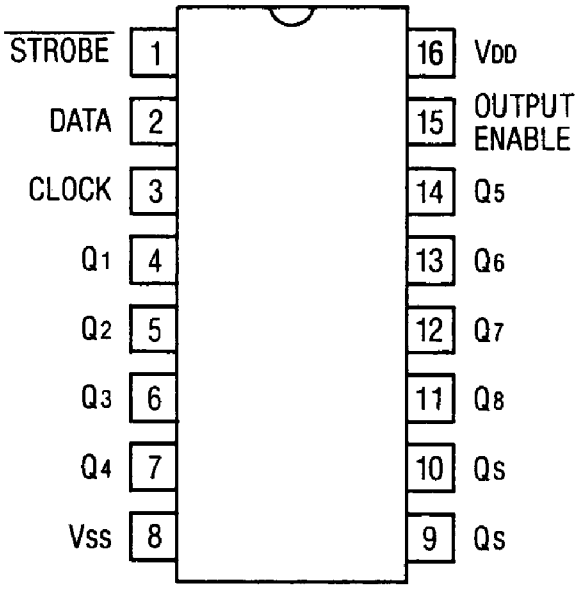
Pin Function Table

NO.	SYMBOL	I/O	RATING
1	OSCIN	I	Cristal oscillator input
2	OSCOUT	O	
3	Vp	—	Voltage for charge-pump
4	Vcc	—	Voltage for IC
5	Do	O	Charge-pump output
6	GND	—	Ground
7	LD	O	Lock detector output
8	fin	I	Frequency input
9	Clock	I	Serial interface (clock input)
10	Data	I	Serial interface data input
11	LE	I	Serial interface load enable input
12	FC	O	Do changer output
13	fr	O	Reference Frequency output
14	fp	O	Programmable counter output
15	φP	O	Charge-pump output
16	φR	O	

■ TK10487MT (MAIN UNIT IC-203)

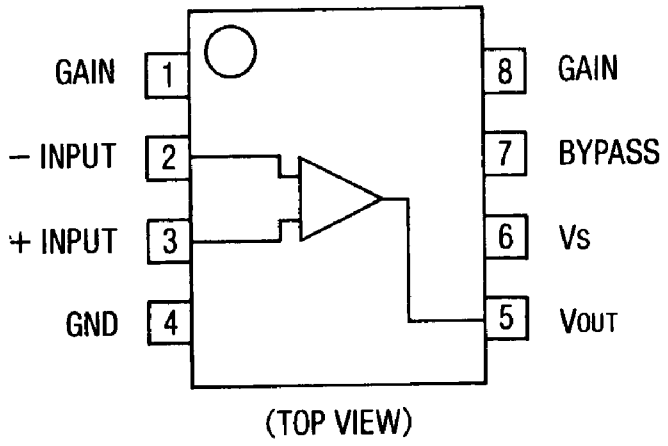


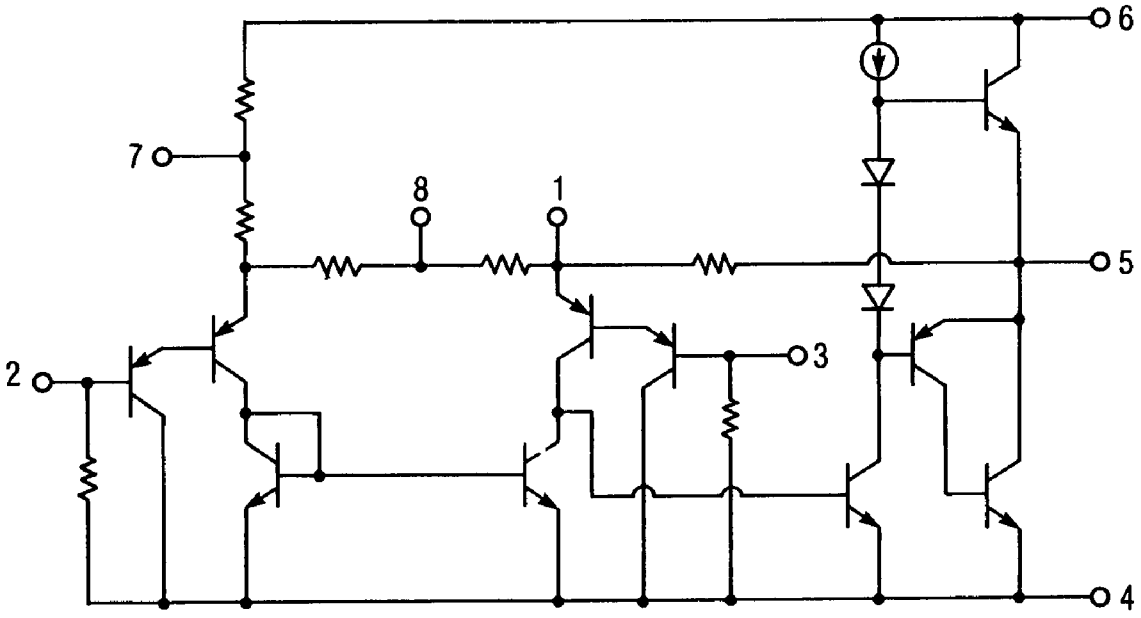
■ μPD4094BG (MAIN UNIT IC-204)



CLOCK	OUTPUT ENABLE	STROBE	DATA	PARALLEL OUTPUT		SERIES OUTPUT	
				Q_1	Q_n	Q_S*	Q's
⌐‾	L	×	×	High Impedance	High Impedance	D_7	NO CHANGE
‾⌐	L	×	×	High Impedance	High Impedance	NO CHANGE	D_8
⌐‾	H	L**	×	NO CHANGE	NO CHANGE	D_7	NO CHANGE
⌐‾	H	H	L	L	Q_{n-1}	D_7	NO CHANGE
⌐‾	H	H	H	H	Q_{n-1}	D_7	NO CHANGE
‾⌐	H	H	H	NO CHANGE	NO CHANGE	NO CHANGE	D_8

■NJM386M (MAIN UNIT IC-205)

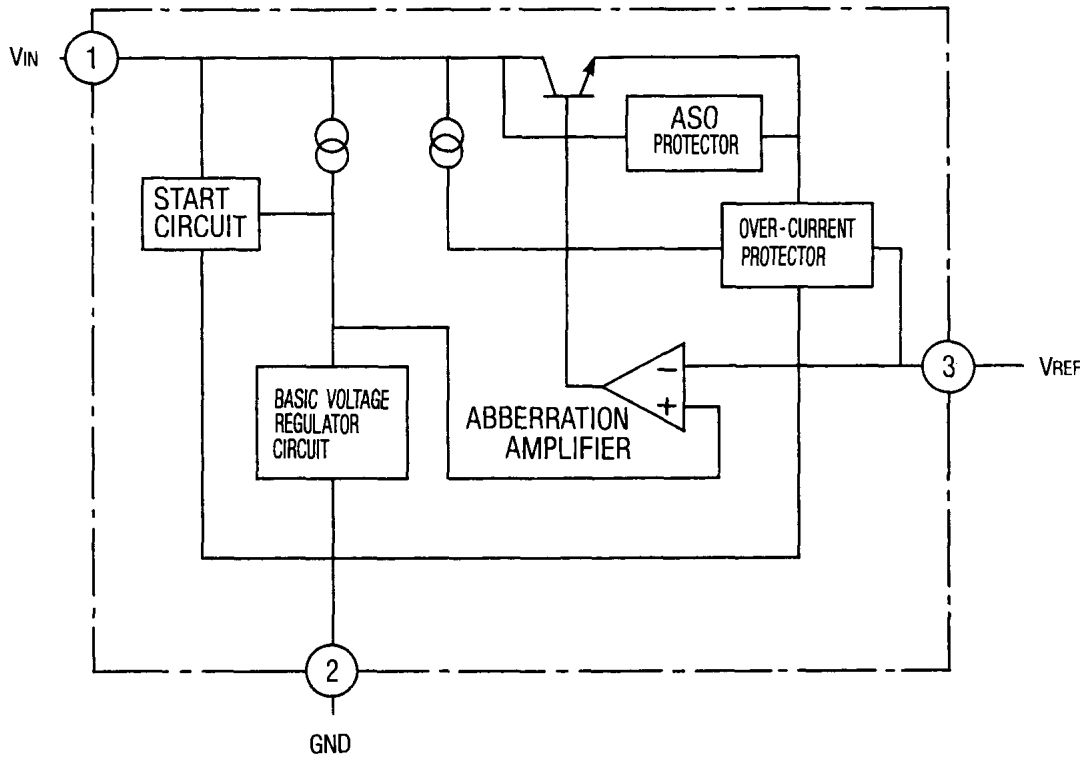


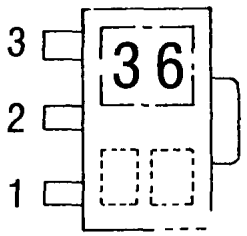


Electrical Characteristics

ITEM	CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply voltage		Vs	4	—	12	V
Reactive current	VIN=0V	Io	—	4	8	mA
Output voltage	RL=8Ω, THD=10%	POUT	250	325	—	mW
Output voltage	Vs=9V, RL=16Ω, THD=10%	POUT	—	500	—	mW
Voltage gain	f=1kHz	AV	—	26	—	dB
Voltage gain	f=1kHz,	AV	—	46	—	dB
Band width		BW	—	300	—	kHz
Total high distorsion	RL=8Ω, POUT=125mW f=1kHz,	THD	—	0.2	—	%
Power supply rejection	f=1kHz,	PSRR	—	50	—	dB
Input register		RIN	—	50	—	KΩ
Input bias supply		IBIAS	—	250	—	nA

■M5236ML (MAIN UNIT IC-206)

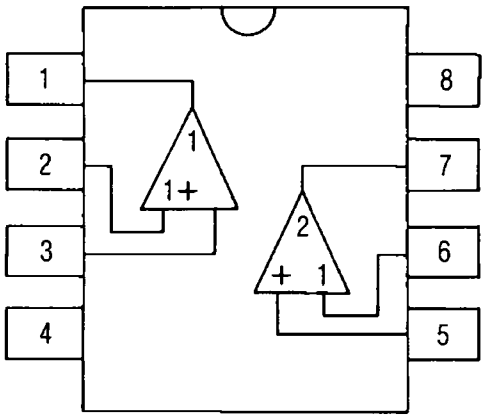




Electrical Characteristics

ITEM	SYMBOL	CONDITION	RATING			UNIT
			MIN.	TYP.	MAX.	
Input voltage	V_{IN}		3.5	—	36	V
Output voltage	V_O		1.5	—	33	V
Voltage difference	V_{I-O}		—	0.2	0.5	V
Standard voltage	V_{REF}		1.20	1.26	1.32	V
Input regulation	Reg_{-in}	V_I=15~20V	—	0.02	0.1	%/V
Loaded regulation	Reg_{-L}	I_L=10~200mA	—	0.02	0.1	%
Bias current	I_B		—	1.3	2.3	mA
Output voltage temp. coefficient	TCV_O	T_a=0~+75°C	—	0.01	—	%/°C
Ripple rejection ratio	RR	f=120Hz, $\sqrt{r}$=300mVrms V_{I-O}=3V	—	68	—	dB
Output noise voltage	V_{NO}	Δf=20Hz~100kHz	—	33	—	μVrms

■M5218 (MAIN UNIT IC-207)

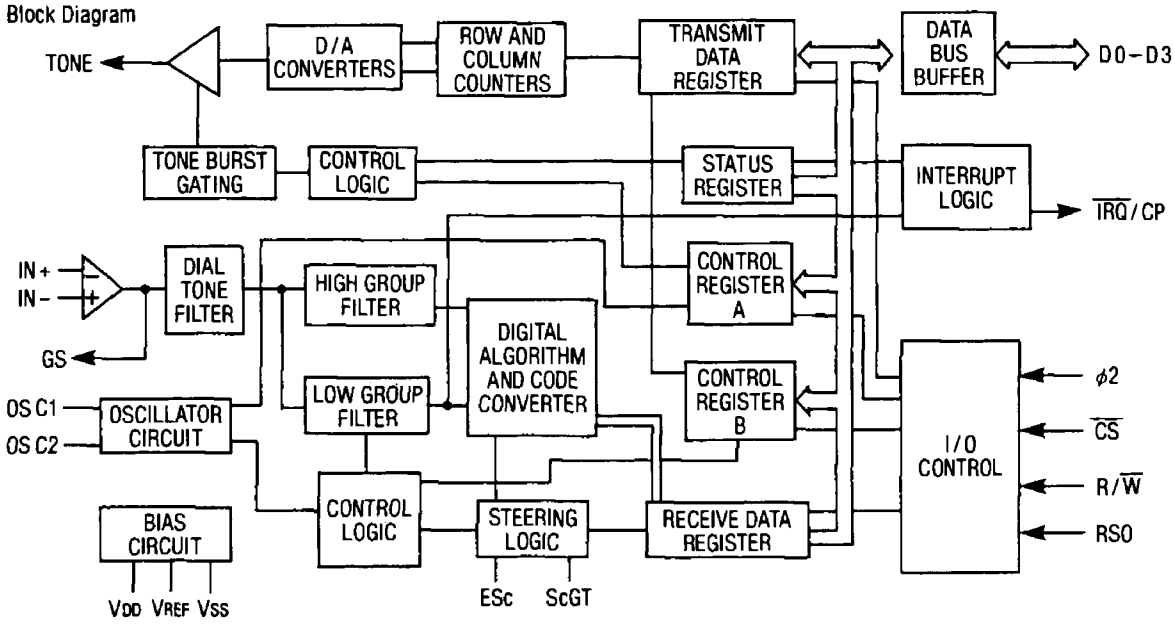


Electrical Characteristics

ITEM	SYMBOL	CONDITION	RATING			UNIT
			MIN.	TYP.	MAX.	
I. current circuit	I_{CC}	$V_{in}=0$	—	3.0	6.0	mA
V. input offset	V_{IO}	$R_S \leqq 10K\Omega$	—	0.5	6.0	mV
I. input offset	I_{IO}		—	5	200	nA
I. input bias	I_B		—	—	500	nA
R. input	R_{in}		0.3	5	—	MΩ
G. open voltage	G_{VO}	$R_L \geqq 2K\Omega$, $V_O = \pm 10V$	86	110	—	dB
V. max. output	V_{OM}	$R_L \geqq 10K\Omega$	±12	±14	—	V
		$R_L \geqq 2K\Omega$	±10	±13	—	V
Common mode range	V_{CM}		±12	±14	—	V
Common mode rejection	CMRR	$R_S \leqq 10K\Omega$	70	90	—	dB
C. voltage rejection ratio	SVRR	$R_S \leqq 10K\Omega$	—	30	150	μV/V
Power consumption	P_d		—	90	180	mW
Bandwidth	f_T		—	7	—	MHz
Through rate	SR	G_V =0dB, R_L =2KΩ	—	2.2	—	V/μs
Input scale noise voltage	V_{NI}	R_S =1KΩ, BW: 10Hz ~ 30kHz	—	2.0	—	μVrms

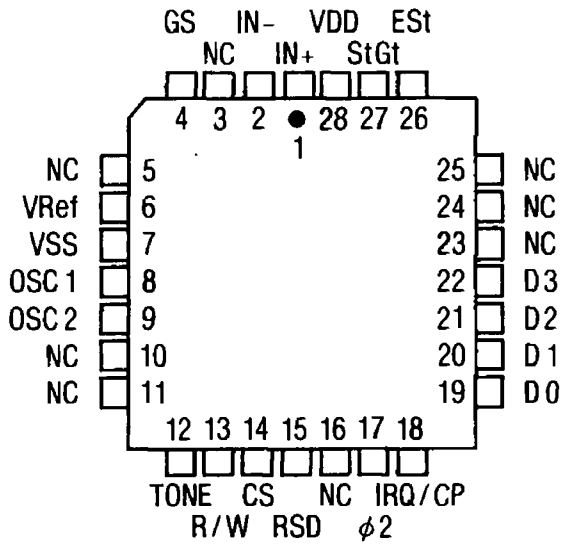
■CM8880 (DTMF UNIT IC-601)

Block Diagram

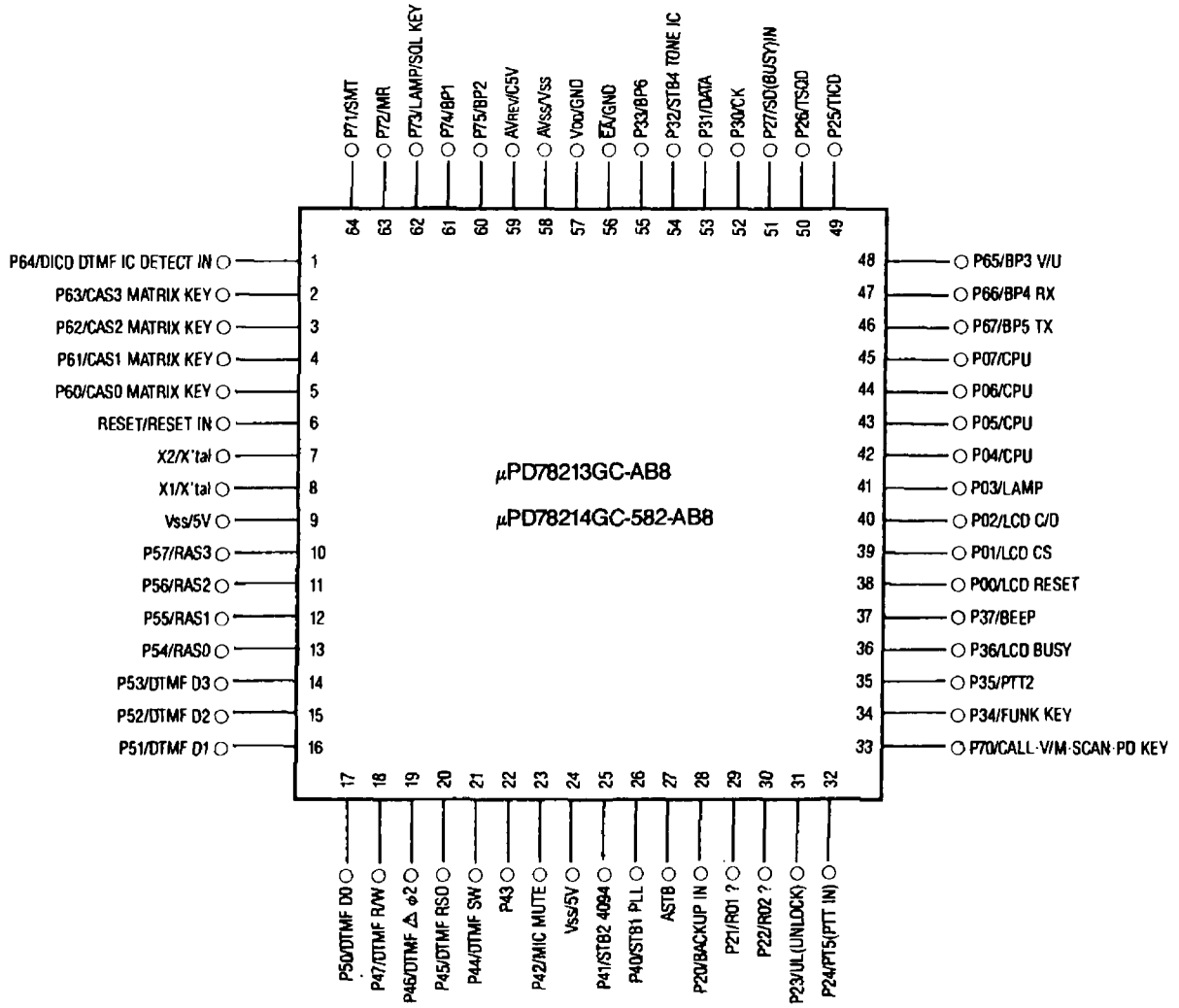


This is advance information and specifications are subject to change without notice.

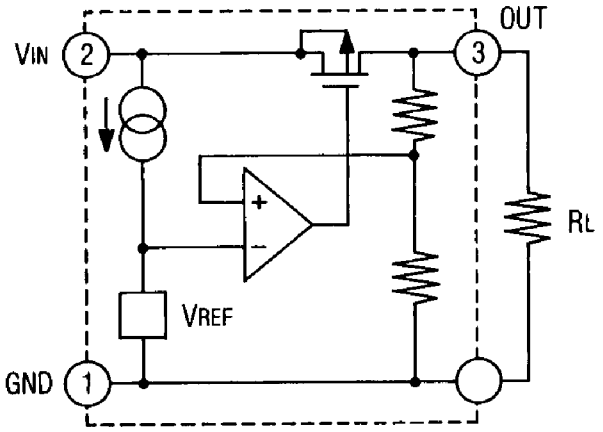
■TM8880 (DTMF UNIT IC-602)



■ MPD78214GC582-AB8 (CPU UNIT IC-02)

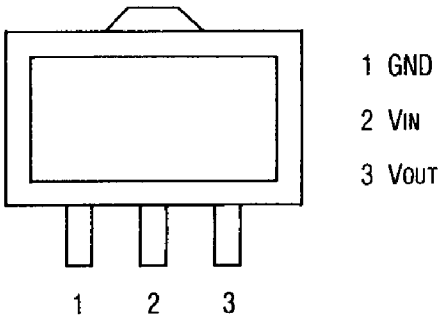


■S-81250HG (CPU UNIT IC-03)

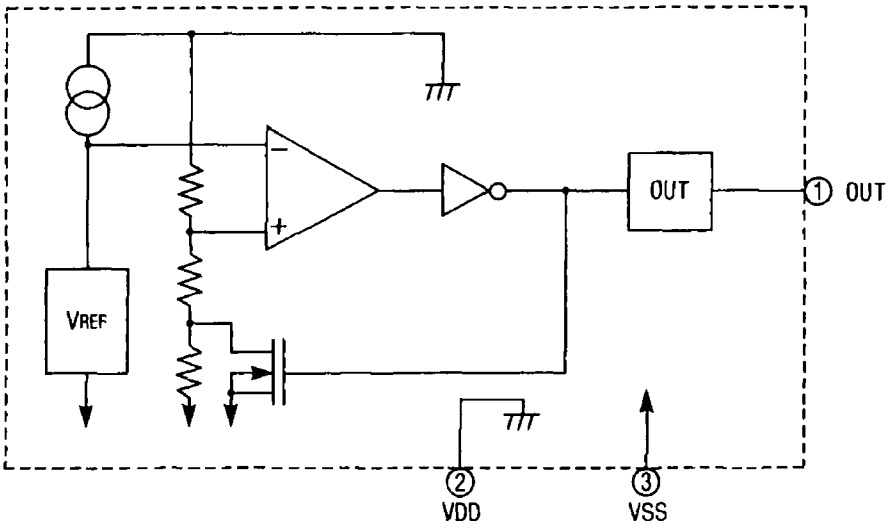


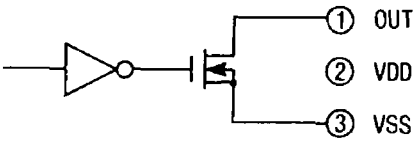
Electric Characteristics (+5V output/high-tention proof) (Unless specified; Ta=25°C)

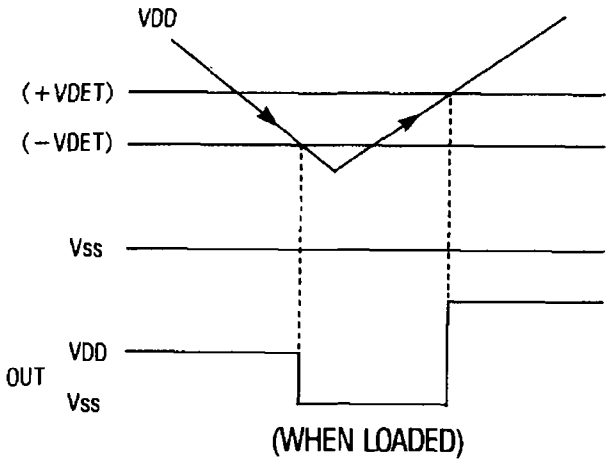
ITEM	SYMBOL	CONDITION	RATING			UNIT
			MIN.	TYP.	MAX.	
Output voltage	V_{OUT}	V_{IN} = +7V, I_{OUT} =10mA	4.75	5.00	5.25	V
Output current	I_{OUT}	V_{IN} = +7V	40	50	—	mA
Load stability	ΔV_{OUT}	1mA≦I_{OUT}≦40mA V_{IN} = +7V	—	40	80	mV
In/output voltage difference	V_{dif}	I_{OUT} =1mA	—	30	—	mV
Current consumption	I_{SS}	V_{IN} = +7V, No load	—	3.0	7.0	μA
Input stability	$\frac{\Delta V_{OUT}}{\Delta V_{IN}\text{-}V_{OUT}}$	+6V≦V_{IN}≦+10V	—	0.1	—	%/V
Input voltage	V_{IN}		—	—	12	V
Temperature coefficient of output voltage	$\frac{\Delta V_{OUT}}{\Delta T_a}$	I_{OUT} =10mA −20°C≦Ta≦70°C	—	±0.625	—	mV/°C

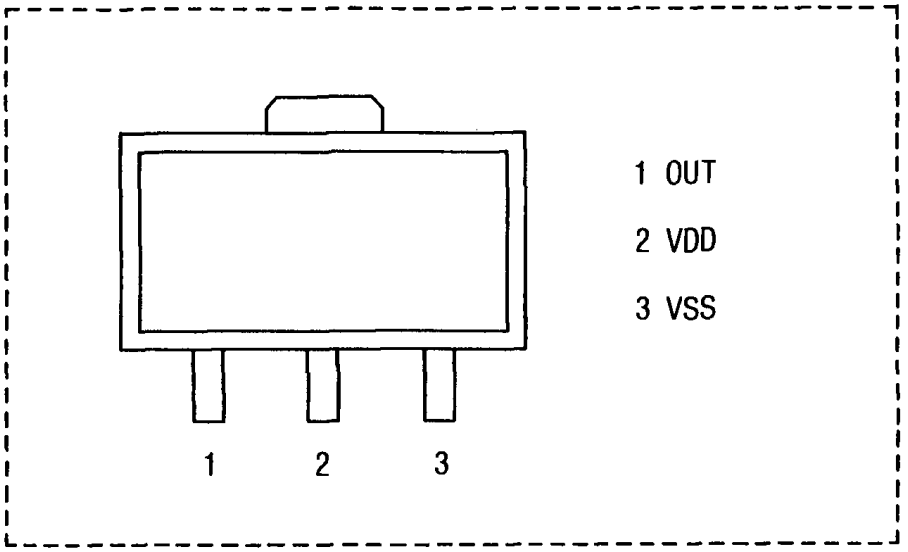


■ S-8054HN (CPU UNIT IC-04)









ITEM	SYMBOL	CONDITION	UNIT
Supply voltage range	V_{DD}-V_{SS}	12.0	V
Input voltage	V_{in}	$V_{SS}-0.3 \sim V_{DD}+0.3$	
Output voltage	V_{out}	$V_{SS}-0.3 \sim 12$	
Output current	I_{out}	50	mA
Power-loss allowance	P_d	200	mW
Operation temp.	T_{opr}	$-20 \sim +70$	°C
Storage temp.	T_{stg}	$-40 \sim +125$	
Solder	T_{solder}	260°C 10 sec.	

■DJ-F1T/E DJ-S1T/E PARTS LIST

Ref. No.	Part Code	Part Name and Number
CPU UNIT		
IC1	XA0141	IC, μPD7225GB-3B7
IC2	XA0165	IC, μPD78214GC582-AB8
IC3	XA0142	IC, S-81250HG-RD-TI
IC4	XA0106	IC, S-8054HN-CB-TI
Q1	XU0003	Transistor, DTC114TKT96
Q2	XU0012	Transistor, DTC114EKT96
Q3	XT0095	Transistor, 2SC4081T106R
Q4	XT0095	Transistor, 2SC4081T106R
Q5	XU0029	Transistor, DTC114YUT106
Q6	XT0077	Transistor, 2SC3326ATE85L
Q7	XT0094	Transistor, 2SA1576T106R
D1	XL0025	Diode, SLE-0022M
D2	XD0128	Diode, MA713-TX
D3	XD0128	Diode, MA713-TX
D4	XD0120	Diode, MA704WK-TX
D6	XD0129	Diode, ISS318TT11
C1	CU3047	Chip C, CM105W5R103
C2	CS0235	Chip C, TMC-M1V334MTRA
C5	CU3059	Chip C, CM105Y5V104Z (T only)
C5	CU3054	Chip C, CM105W5R223k25V(E only)
C6	CU3047	Chip C, CM105W5R103 (T only)
C6	CU3054	Chip C, CM105W5R223k25V(E only)
C7	CU3056	Chip C, CM105Y5V473Z (T only)
C7	CU3054	Chip C, CM105W5R223k25V(E only)
C8	CU3047	Chip C, CM105W5R103
C9	CS0053	Chip C, TMC0J476TRD
C10	CS0050	Chip C, TMC1A475TRB
C11	CU3047	Chip C, CM105W5R103
C12	CS0057	Chip C, TMC0J225TRA
C13	CS0057	Chip C, TMC0J225TRA
C14	CU3031	Chip C, CM105W5R471
C15	CU3047	Chip C, CM105W5R103
C16	CU3035	Chip C, CM105W5R102
C17	CU3035	Chip C, CM105W5R102
C18	CU3047	Chip C, CM105W5R103
C19	CU3047	Chip C, CM105W5R103
C20	CS0049	Chip C, TMC1C105TRA
C21	CU3047	Chip C, CM105W5R103
C23	CU3011	Chip C, CM105CH100K
C24	CU3023	Chip C, CM105CH101K
C25	CU3023	Chip C, CM105CH101K
C26	CU3063	Chip C, CM105W5R153K25V(E only)
R1	RK3001	Chip R, MCR03EZHJ000
R2	RK3058	Chip R, MCR03EZHJ473
R3	RK3058	Chip R, MCR03EZHJ473
R4	RK3058	Chip R, MCR03EZHJ473
R5	RK3065	Chip R, MCR03EZHJ184
R6	RK3024	Chip R, MCR03EZHJ680
R7	RK3058	Chip R, MCR03EZHJ473
R8	RK3038	Chip R, MCR03EZHJ102
R11	RK3102	Chip R, MCR03EZHJ203 (T only)
R12	RK3001	Chip R, MCR03EZHJ000 (E only)
R12	RK3050	Chip R, MCR03EZHJ103 (T only)
R13	RK3102	Chip R, MCR03EZHJ203 (T only)
R14	RK3102	Chip R, MCR03EZHJ203 (T only)
R15	RK3001	Chip R, MCR03EZHJ000 (E only)
R15	RK3050	Chip R, MCR03EZHJ103 (T only)
R16	RK3050	Chip R, MCR03EZHJ103 (E only)
R16	RK3102	Chip R, MCR03EZHJ203 (T only)
R17	RK3001	Chip R, MCR03EZHJ000 (E only)
R17	RK3050	Chip R, MCR03EZHJ103 (T only)
R18	RK3102	Chip R, MCR03EZHJ203 (T only)
R19	RK3058	Chip R, MCR03EZHJ473
R20	RK3050	Chip R, MCR03EZHJ103 (E only)
R20	RK3058	Chip R, MCR03EZHJ473 (T only)
R21	RK3050	Chip R, MCR03EZHJ103 (E only)
R21	RK3058	Chip R, MCR03EZHJ473 (T only)
R22	RK3067	Chip R, MCR03EZHJ274
R23	RK3022	Chip R, MCR03EZHJ470
R24	RK3039	Chip R, MCR03EZHJ122
R25	RK3038	Chip R, MCR03EZHJ102
R26	RK3058	Chip R, MCR03EZHJ473
R27	RK3067	Chip R, MCR03EZHJ274
R28	RK3056	Chip R, MCR03EZHJ333
R29	RK3062	Chip R, MCR03EZHJ104
R30	RK3062	Chip R, MCR03EZHJ104

Ref. No.	Part Code	Part Name and Number
R31	RK3050	Chip R, MCR03EZHJ103 (T only)
R31	RK3056	Chip R, MCR03EZHJ333 (E only)
R32	RK3050	Chip R, MCR03EZHJ103
R34	RK3050	Chip R, MCR03EZHJ103
R35	RK3062	Chip R, MCR03EZHJ104
R36	RK3062	Chip R, MCR03EZHJ104
R37	RK3058	Chip R, MCR03EZHJ473
R38	RK3058	Chip R, MCR03EZHJ473
R39	RK3056	Chip R, MCR03EZHJ333
R40	RK3050	Chip R, MCR03EZHJ103
R41	RK3038	Chip R, MCR03EZHJ102
R42	RK3038	Chip R, MCR03EZHJ102
R43	RK3039	Chip R, MCR03EZHJ122
R44	RK3067	Chip R, MCR03EZHJ274
R45	RK3022	Chip R, MCR03EZHJ470
R46	RK3058	Chip R, MCR03EZHJ473
R47	RK3046	Chip R, MCR03EZHJ472
R48	RK3046	Chip R, MCR03EZHJ472
R49	RK3038	Chip R, MCR03EZHJ102
R50	RK3050	Chip R, MCR03EZHJ103
R51	RK3056	Chip R, MCR03EZHJ333
R52	RK3001	Chip R, MCR03EZHJ000 (T only)
R53	RK3001	Chip R, MCR03EZHJ000 (E only)
R54	RK3035	Chip R, MCR03EZHJ561
R55	RK3058	Chip R, MCR03EZHJ473
R56	RK3058	Chip R, MCR03EZHJ473
R57	RK3050	Chip R, MCR03EZHJ103
R58	RK3054	Chip R, MCR03EZHJ223
R59	RK3001	Chip R, MCR03EZHJ000
R60	RK3050	Chip R, MCR03EZHJ103
R62	RK3039	Chip R, MCR03EZHJ122
R64	RK3050	Chip R, MCR03EZHJ103
L1	QC0048	Chip L, NL322522T100K
L2	QC0048	Chip L, NL322522T100K
L4	QC0010	Chip L, MLF321611E100M
VR1	RH0060	VR, MVR32HXBRN473
VR2	RH0060	VR, MVR32HXBRN473
VR3	RH0060	VR, MVR32HXBRN473
X001	XB0001	X'tal FARC4CA03580000K01
	ED0002	LITHIUM BATT.
	TZ0044	CPU Insulate sheet
SW1	UU0013	Switch SKHUAB Tape
SW2	UU0013	Switch SKHUAB Tape
SW3	UU0013	Switch SKHUAB Tape
CN1	UE0129	Connector, DF9A-9S-1V(22)
CN2	UE0130	Connector, DF9A-11S-1V(22)
CN3	UE0131	Connector, DF9A-13S-1V(22)
CN4	UE0135	Connector, 52207-0590
LCD	EL0015	LCD DJ-F1
	ST0026	LCD Flame
	DH0006	LCD Reflection Board
	FG0067	LCD Sillicon Rubber Connector
	UP0199	DJF1
	UP0200	DJF1
	UE0137	Pin Header SB4P-HVQ-28
W1	MACL02AA	#02Blue
W2	MRCL02AA	#02Red
VCO UNIT		
Q101	XT0030	Transistor, 2CS3356T1
Q102	XT0030	Transistor, 2CS3356T1
Q103	XT0090	Transistor, 2SC2411KT146
D101	XD0132	Diode, 1SV215TPH4
D102	XD0132	Diode, 1SV215TPH4
D103	XD0131	Diode, 1SV214TPH4
L101	QC0003	Chip L, MLF321606A-1R0M
L102	QC0090	Chip L, MLF321606A-4R7M
L103	QC0010	Chip L, MLF321611E-100M
L104	QA0077	Chip L, Case Coil QA0077
L105	QC0010	Chip L, MLF321611E-100M

Ref. No.	Part Code	Part Name and Number
	TS0056	VCO Shield K1
	TS0057	PM Shield K1
	UT0019	PC Board Terminal CK-1-2
	TS0052A	VCO Case DJF1
C101	CU3035	Chip C, CM105W5R102K
C102	CU3035	Chip C, CM105W5R102K
C103	CU3035	Chip C, CM105W5R102K
C104	CS0063	Chip C, TMC1V104TR
C105	CU3019	Chip C, CM105CH470K
C106	CU3035	Chip C, CM105W5R102K
C107	CU3035	Chip C, CM105W5R102K
C108	CU3002	Chip C, CM105CH010C
C109	CU3047	Chip C, CM105W5R103K
C110	CS0216	Chip C, TMC-M1A106MTR
C111	CU3047	Chip C, CM105W5R103K
C112	CU3047	Chip C, CM105W5R103K
C113	CU3006	Chip C, CM105CH050C
C114	CU3035	Chip C, CM105W5R102K
C115	CU3035	Chip C, CM105W5R102K
C116	CU3021	Chip C, CM105CH680K
C117	CU3002	Chip C, CM105CH010C
C118	CU3047	Chip C, CM105W5R103K
C119	CU3035	Chip C, CM105W5R102K
C120	CS0049	Chip C, TMC1C105TR
C121	CU3035	Chip C, CM105W5R102K
C122	CU3059	Chip C, CM105Y5V104Z
R101	RK3026	Chip R, MCR03EZHJ101
R102	RK3022	Chip R, MCR03EZHJ470
R103	RK3030	Chip R, MCR03EZHJ221
R104	RK3030	Chip R, MCR03EZHJ221
R105	RK3054	Chip R, MCR03EZHJ223
R106	RK3050	Chip R, MCR03EZHJ103
R107	RK3046	Chip R, MCR03EZHJ472
R108	RK0052	Chip R, MCR10EZHJ103E
R109	RK3026	Chip R, MCR03EZHJ101
R110	RK3034	Chip R, MCR03EZHJ471
R111	RK3026	Chip R, MCR03EZHJ101
R112	RK3062	Chip R, MCR03EZHJ104
R113	RK3038	Chip R, MCR03EZHJ102
R114	RK3038	Chip R, MCR03EZHJ102
R115	RK3063	Chip R, MCR03EZHJ124
R116	RK3062	Chip R, MCR03EZHJ104
R117	RK3038	Chip R, MCR03EZHJ102
R118	RK3050	Chip R, MCR03EZHJ103
MAIN UNIT		
IC201	XA0148	IC, M67748L
IC202	XA0145	IC, MB1504LPF-G-BND-TF
IC203	XA0144	IC, TK-10487MTR
IC204	XA0019	IC, μPD40948G-T1
IC205	XA0061	IC, NJM386M-T1
IC206	XA0104	IC, M5236ML-T73A-36
IC207	XA0068	IC, M5218FP-T01-1
Q201	XT0097	Transistor, 2SC4393TE85L
Q202	XT0097	Transistor, 2SC4393TE85L
Q203	XT0030	Transistor, 2SC3356T1BR25
Q204	XT0095	Transistor, 2SC4081T106R
Q205	XT0096	Transistor, 2SC4099T106N
Q206	XU0029	Transistor, DTC114YUT106
Q207	XT0088	Transistor, 2SA1213YTE12L
Q208	XU0020	Transistor, FMW1T98
Q209	XT0030	Transistor, 2SC3356T1BR25
Q210	XT0030	Transistor, 2SC3356T1BR25
Q211	XT0094	Transistor, 2SA1576T106R
Q212	XT0030	Transistor, 2SC3356T1BR25
Q213	XT0095	Transistor, 2SC4081T106R
Q214	XT0095	Transistor, 2SC4081T106R
Q215	XT0095	Transistor, 2SC4081T106R
Q216	XT0095	Transistor, 2SC4081T106R
Q217	XT0095	Transistor, 2SC4081T106R
Q218	XT0088	Transistor, 2SA1213YTE12L
Q219	XT0095	Transistor, 2SC4081T106R
Q220	XU0029	Transistor, DTC114YUT106
Q221	XT0088	Transistor, 2SA1213YTE12L
Q222	XU0027	Transistor, FMA7T98

Ref. No.	Part Code	Part Name and Number
Q223	XU0027	Transistor, FMA7T98
Q224	XU0027	Transistor, FMA7T98
Q225	XU0029	Transistor, DTC114YUT106
D201	XD0066	Diode, RLS135TE11
D202	XD0066	Diode, RLS135TE11
D203	XD0066	Diode, RLS135TE11
D204	XD0129	Diode, 1SS318TT11
D205	XD0132	Diode, 1SV215TPH4
D206	XD0132	Diode, 1SV215TPH4
D207	XD0129	Diode, 1SS318TT11
D208	XD0132	Diode, 1SV215TPH4
D209	XD0132	Diode, 1SV215TPH4
D210	XD0132	Diode, 1SV215TPH4
D211	XD0129	Diode, 1SS318TT11
D212	XD0132	Diode, 1SV215TPH4
D213	XD0132	Diode, 1SV215TPH4
D214	XD0129	Diode, 1SS318TT11
D215	XD0132	Diode, 1SV215TPH4
D216	XD0134	Diode, RB450FT106
D217	XD0129	Diode, 1SS318TT11
D218	XD0129	Diode, 1SS318TT11
D219	XD0129	Diode, 1SS318TT11
D220	XD0127	Diode, MA704WA-TX
D221	XD0136	Diode, DTZ5. 1ATT11
D222	XD0110	Diode, 1N5551
D223	XD0128	Diode, MA713-TX
D224	XD0129	Diode, 1SS318TT11
D225	XD0130	Diode, DA204UT106
D226	XD0118	Diode, MA716-TW
D228	XD0129	Diode, 1SS318TT11
D229	XD0129	Diode, 1SS318TT11
D230	XD0129	Diode, 1SS318TT11
D231	XD0137	Diode, DTZ6. 2ATT11
D232	XD0129	Diode, 1SS318TT11
L201	QK0063	Chip L, LK0. 5-3X3. 5TR
L202	QK0063	Chip L, LK0. 5-3X3. 5TR
L203	QK0063	Chip L, LK0. 5-3X3. 5TR
L204	QC0003	Chip L, MLF321606A1R0M
L205	QA0071	Chip L, QA0071
L206	QC0009	Chip L, MLF321606DR10M
L207	QA0071	Chip L, QA0071
L208	QA0071	Chip L, QA0071
L209	QA0071	Chip L, QA0071
L210	QC0009	Chip L, MLF321606DR10M
L211	QK0063	Chip L, LK0. 5-3X3. 5TR
L212	QC0010	Chip L, MLF321611E100M
L213	QC0010	Chip L, MLF321611E100M
C201	CU3017	Chip C, CM105CH330K
C202	CU3006	ChiP C, CM105CH050C
C203	CU3014	Chip C, CM105CH180K
C204	CU3003	Chip C, CM105CH020C
C205	CU3017	Chip C, CM105CH330K
C206	CU3047	Chip C, CM105W5R103K
C208	CU3035	Chip C, CM105W5R102K
C209	CU3035	Chip C, CM105W5R102K
C210	CU3018	Chip C, CM105CH390K
C211	CU3047	Chip C, CM105W5R103K
C212	CU3035	Chip C, CM105W5R102K
C213	CU3012	Chip C, CM105CH120K
C214	CU3011	Chip C, CM105CH100K
C215	CU3018	Chip C, CM105CH390K
C216	CU3011	Chip C, CM105CH100K
C217	CU3017	Chip C, CM105CH330K
C218	CU3016	Chip C, CM105CH270K
C219	CU3035	Chip C, CM105W5R102K
C220	CU3003	Chip C, CM105CH020C
C221	CU3002	Chip C, CM105CH010C
C222	CU3047	Chip C, CM105W5R103K
C223	CU3006	ChiP C, CM105CH050C
C224	CU3035	Chip C, CM105W5R102K
C225	CU3047	Chip C, CM105W5R103K
C226	CU3059	Chip C, CM105Y5V104Z25V
C227	CU3047	Chip C, CM105W5R103K
C228	CU3024	Chip C, CM105CH121K
C229	CU3035	Chip C, CM105W5R102K
C230	CS0216	Chip C, TMC-M1A106MTRB
C231	CS0063	Chip C, TMC1V104TRA
C232	CU3035	Chip C, CM105W5R102K
C233	CU3015	Chip C, CM105CH220K
C234	CU3035	Chip C, CM105W5R102K
C235	CU3047	Chip C, CM105W5R103K
C236	CS0220	Chip C, TMC-M1C225MTRA
C237	CS0216	Chip C, TMC-M1A106MTRB
C238	CU3035	Chip C, CM105W5R102K
C239	CU3016	Chip C, CM105CH270K
C240	CS0049	Chip C, TMC1C105TRA
C241	CU3016	Chip C, CM105CH270K
C242	CU3006	ChiP C, CM105CH050C
C243	CU3047	Chip C, CM105W5R103K
C245	CU3035	Chip C, CM105W5R102K
C246	CU3003	Chip C, CM105CH020C
C247	CU3003	Chip C, CM105CH020C
C248	CU3047	Chip C, CM105W5R103K
C249	CU3015	Chip C, CM105CH220K
C250	CU3023	Chip C, CM105CH101K
C251	CU3006	ChiP C, CM105CH050C
C252	CU3047	Chip C, CM105W5R103K
C253	CS0049	Chip C, TMC1C105TRA
C254	CU3059	Chip C, CM105Y5V104Z25V
C255	CS0220	Chip C, TMC-M1C225MTRA
C256	CU3059	Chip C, CM105Y5V104Z25V
C257	CU3059	Chip C, CM105Y5V104Z25V
C258	CU3011	Chip C, CM105CH100K
C259	CU3011	Chip C, CM105CH100K
C260	CU3002	Chip C, CM105CH010C
C261	CU3004	Chip C, CM105CH030C
C262	CU3002	Chip C, CM105CH010C
C263	CU3004	Chip C, CM105CH030C
C264	CU3035	Chip C, CM105W5R102K
C265	CU3035	Chip C, CM105W5R102K
C266	CS0063	Chip C, TMC1V104TRA
C267	CU3059	Chip C, CM105Y5V104Z25V
C268	CU3039	Chip C, CM105W5R222K
C269	CS0049	Chip C, TMC1C105TRA
C270	CU3021	Chip C, CM105CH680K
C271	CU3059	Chip C, CM105Y5V104Z25V
C272	CU3054	Chip C, CM105W5R223K25V
C273	CU3029	Chip C, CM105W5R331K
C274	CU3035	Chip C, CM105W5R102K
C275	CU3054	Chip C, CM105W5R223K25V
C276	CU3056	Chip C, CM105Y5V473Z
C277	CU3054	Chip C, CM105W5R223K25V
C278	CS0063	Chip C, TMC1V104TRA
C279	CS0049	Chip C, TMC1C105TRA
C280	CU3043	Chip C, CM105W5R472K
C281	CU3023	Chip C, CM105CH101K
C282	CS0216	Chip C, TMC-M1A106MTRB
C285	CU3011	Chip C, CM105CH100K
C286	CS0211	Chip C, TMC-M0J336MTRC
C287	CS0049	Chip C, TMC1C105TRA
C288	CU3047	Chip C, CM105W5R103K
C289	CU3059	Chip C, CM105Y5V104Z25V
C290	CU3035	Chip C, CM105W5R102K
C291	CU3035	Chip C, CM105W5R102K
C292	CU3023	Chip C, CM105CH101K
C293	CU3019	Chip C, CM105CH470K
C294	CU3035	Chip C, CM105W5R102K
C295	CU3059	Chip C, CM105Y5V104Z25V
C296	CU3059	Chip C, CM105Y5V104Z25V
C297	CU3021	Chip C, CM105CH680K
C298	CS0235	Chip C, TMC-M1V334MTRA
C299	CU3035	Chip C, CM105W5R102K
C300	CU3047	Chip C, CM105W5R103K
C301	CU3047	Chip C, CM105W5R103K
C302	CS0049	Chip C, TMC1C105TRA
C303	CU3059	Chip C, CM105Y5V104Z25V
C304	CS0220	Chip C, TMC-M1C225MTRA
C305	CU3059	Chip C, CM105Y5V104Z25V
C306	CU3023	Chip C, CM105CH101K
C307	CU3044	Chip C, CM105W5R562K
C308	CU3059	Chip C, CM105Y5V104Z25V
C309	CU3059	Chip C, CM105Y5V104Z25V
C310	CS0050	Chip C, TMC1A475TRB
C311	CE0308	Chip C, ECEV0JA101P
C312	CU3035	Chip C, CM105W5R102K
C313	CS0049	Chip C, TMC1C105TRA
C314	CU3047	Chip C, CM105W5R103K
C315	CU3035	Chip C, CM105W5R102K
C316	CU3054	Chip C, CM105W5R223K25V
C317	CU3059	Chip C, CM105Y5V104Z25V
C318	CU3059	Chip C, CM105Y5V104Z25V
C319	CU3047	Chip C, CM105W5R103K
C320	CU3047	Chip C, CM105W5R103K
C321	CU3035	Chip C, CM105W5R102K
C323	CU3047	Chip C, CM105W5R103K
C324	CS0049	Chip C, TMC1C105TRA
C325	CS0053	Chip C, TMC0J476TRD
C326	CU3035	Chip C, CM105W5R102K
C327	CE0308	Chip C, ECEV0JA101P
C328	CU3013	Chip C, CM105CH150K
C329	CU3059	Chip C, CM105Y5V104Z25V
C331	CU3035	Chip C, CM105W5R102K
C332	CU3035	Chip C, CM105W5R102K
C334	CU3023	Chip C, CM105CH101K
C335	CU3023	Chip C, CM105CH101K
C336	CU3035	Chip C, CM105W5R102K
C337	CU3035	Chip C, CM105W5R102K
C338	CU3023	Chip C, CM105CH101K
C339	CU3023	Chip C, CM105CH101K
C340	CU3059	Chip C, CM105Y5V104Z25V
C341	CU3031	Chip C, CM105W5R471K
C342	CU3035	Chip C, CM105W5R102K
C343	CU3047	Chip C, CM105W5R103K
C344	CU3035	Chip C, CM105W5R102K
C345	CU3009	ChiP C, CM105CH080C
C346	CU3035	Chip C, CM105W5R102K
C347	CE0056	Chemical C, 16MV100SW
C348	CU3035	Chip C, CM105W5R102K
C349	CS0049	Chip C, TMC1C105TRA
C350	CU3035	Chip C, CM105W5R102K
R201	RK3030	Chip R, MCR03EZHJ221
R202	RK3074	Chip R, MCR03EZHJ105
R203	RK3050	Chip R, MCR03EZHJ103
R204	RK3022	Chip R, MCR03EZHJ470
R205	RK3050	Chip R, MCR03EZHJ103
R206	RK3074	Chip R, MCR03EZHJ105
R207	RK3050	Chip R, MCR03EZHJ103
R208	RK3074	Chip R, MCR03EZHJ105
R210	RK3050	Chip R, MCR03EZHJ103
R211	RK3056	Chip R, MCR03EZHJ333
R212	RK3038	Chip R, MCR03EZHJ102
R213	RK3038	Chip R, MCR03EZHJ102
R216	RK3062	Chip R, MCR03EZHJ104
R217	RK3050	Chip R, MCR03EZHJ103
R218	RK3001	Chip R, MCR03EZHJ000
R219	RK3074	Chip R, MCR03EZHJ105
R220	RK3054	Chip R, MCR03EZHJ223
R221	RK3054	Chip R, MCR03EZHJ223
R222	RK3054	Chip R, MCR03EZHJ223
R223	RK3050	Chip R, MCR03EZHJ103
R224	RK3050	Chip R, MCR03EZHJ103
R225	RK3050	Chip R, MCR03EZHJ103
R226	RK3034	Chip R, MCR03EZHJ471
R227	RK3042	Chip R, MCR03EZHJ222
R228	RK3001	Chip R, MCR03EZHJ000
R229	RK3026	Chip R, MCR03EZHJ101
R230	RK3046	Chip R, MCR03EZHJ472
R231	RK3052	Chip R, MCR03EZHJ153
R232	RK3038	Chip R, MCR03EZHJ102
R233	RK3038	Chip R, MCR03EZHJ102
R234	RK3059	Chip R, MCR03EZHJ563
R235	RK3050	Chip R, MCR03EZHJ103
R236	RK3034	Chip R, MCR03EZHJ471
R238	RK3056	Chip R, MCR03EZHJ333
R239	RK3058	Chip R, MCR03EZHJ473
R240	RK3070	Chip R, MCR03EZHJ474
R241	RK3050	Chip R, MCR03EZHJ103
R242	RK3066	Chip R, MCR03EZHJ224
R243	RK3062	Chip R, MCR03EZHJ104
R244	RK3056	Chip R, MCR03EZHJ333
R245	RK3058	Chip R, MCR03EZHJ473
R246	RK3066	Chip R, MCR03EZHJ224
R247	RK3026	Chip R, MCR03EZHJ101
R248	RK3042	Chip R, MCR03EZHJ222
R249	RK3056	Chip R, MCR03EZHJ333
R250	RK3034	Chip R, MCR03EZHJ471
R251	RK3062	Chip R, MCR03EZHJ104
R252	RK3062	Chip R, MCR03EZHJ104
R253	RK3043	Chip R, MCR03EZHJ272
R254	RK3062	Chip R, MCR03EZHJ104
R255	RK3046	Chip R, MCR03EZHJ472

Ref. No.	Part Code	Part Name and Number
R256	RK3058	Chip R, MCR03EZHJ473
R258	RK3001	Chip R, MCR03EZHJ000
R259	RK3035	Chip R, MCR03EZHJ561
R260	RK3042	Chip R, MCR03EZHJ222
R261	RK3001	Chip R, MCR03EZHJ000
R262	RK3072	Chip R, MCR03EZHJ684
R263	RK3046	Chip R, MCR03EZHJ472
R264	RK3070	Chip R, MCR03EZHJ474
R265	RK3044	Chip R, MCR03EZHJ332
R266	RK3026	Chip R, MCR03EZHJ101
R267	RK3067	Chip R, MCR03EZHJ274
R268	RK3050	Chip R, MCR03EZHJ103
R269	RK3046	Chip R, MCR03EZHJ472
R270	RK3058	Chip R, MCR03EZHJ473
R271	RK3054	Chip R, MCR03EZHJ223
R272	RK3050	Chip R, MCR03EZHJ103
R273	RK3042	Chip R, MCR03EZHJ222
R274	RK3026	Chip R, MCR03EZHJ101
R275	RK3062	Chip R, MCR03EZHJ104
R276	RK3046	Chip R, MCR03EZHJ472
R277	RK3051	Chip R, MCR03EZHJ123
R279	RK3042	Chip R, MCR03EZHJ222
R281	RK3026	Chip R, MCR03EZHJ101
R282	RK3042	Chip R, MCR03EZHJ222
R283	RK3047	Chip R, MCR03EZHJ562
R284	RK3026	Chip R, MCR03EZHJ101
R285	RK3026	Chip R, MCR03EZHJ151
R286	RK3014	Chip R, MCR03EZHJ100
R287	RK3066	Chip R, MCR03EZHJ224
R288	RK3042	Chip R, MCR03EZHJ222
R289	RK3046	Chip R, MCR03EZHJ472
R290	RK3030	Chip R, MCR03EZHJ221
R291	RK0105	Chip R, MCR10EZHJ2R2E
R292	RK3047	Chip R, MCR03EZHJ562
R293	RK3053	Chip R, MCR03EZHJ183
R294	RK3044	Chip R, MCR03EZHJ332
R295	RK3038	Chip R, MCR03EZHJ102
R296	RK3042	Chip R, MCR03EZHJ222
R297	RK3050	Chip R, MCR03EZHJ103
R298	RK3056	Chip R, MCR03EZHJ333
R299	RK3038	Chip R, MCR03EZHJ102
R300	RK3042	Chip R, MCR03EZHJ222
R301	RK3038	Chip R, MCR03EZHJ102
R302	RK3046	Chip R, MCR03EZHJ472
R303	RK3034	Chip R, MCR03EZHJ471
R304	RK3050	Chip R, MCR03EZHJ103
R305	RK3043	Chip R, MCR03EZHJ272
R306	RK3038	Chip R, MCR03EZHJ102
R307	RK3054	Chip R, MCR03EZHJ223
R308	RK3066	Chip R, MCR03EZHJ224
R309	RK3047	Chip R, MCR03EZHJ562
R310	RK3034	Chip R, MCR03EZHJ471
R311	RK3026	Chip R, MCR03EZHJ101
R312	RK3050	Chip R, MCR03EZHJ103
R313	RK3056	Chip R, MCR03EZHJ333
R314	RK3050	Chip R, MCR03EZHJ103
R315	RK3050	Chip R, MCR03EZHJ103
R316	RK3038	Chip R, MCR03EZHJ102
R317	RK3038	Chip R, MCR03EZHJ102
R318	RK3026	Chip R, MCR03EZHJ151
R319	RK3026	Chip R, MCR03EZHJ101
R320	RK3074	Chip R, MCR03EZHJ105
R321	RK3038	Chip R, MCR03EZHJ102
R322	RK3042	Chip R, MCR03EZHJ222
R323	RK3056	Chip R, MCR03EZHJ333
R324	RK3073	Chip R, MCR03EZHJ824
R325	RK3050	Chip R, MCR03EZHJ103
R326	RK3001	Chip R, MCR03EZHJ000
R327	RK3046	Chip R, MCR03EZHJ472
R328	RK3038	Chip R, MCR03EZHJ102
R329	RK3038	Chip R, MCR03EZHJ102
R330	RK3072	Chip R, MCR03EZHJ684
R331	RK3038	Chip R, MCR03EZHJ102
R332	RK3038	Chip R, MCR03EZHJ102
R333	RK3050	Chip R, MCR03EZHJ103
R334	RK3030	Chip R, MCR03EZHJ221
R335	RK1018	Chip R, MCR18EZHJ101E
R336	RK3026	Chip R, MCR03EZHJ101
R337	RK3050	Chip R, MCR03EZHJ103
R338	RK3062	Chip R, MCR03EZHJ104
R339	RK3062	Chip R, MCR03EZHJ104
R340	RK1107	Chip R, MCR18EZHJ000E
R342	RK3060	Chip R, MCR03EZHJ683
R343	RK3001	Chip R, MCR03EZHJ000
TC201	CT0012	Trimmer C, CTZ-10AW
VR201	RH0064	VR, MVR32HXBRN103
VR202	RH0061	VR, MVR32HXBRN472
VR203	RH0064	VR, MVR32HXBRN103
VR204	RV0014	VR, RK09722115R1211
X201	XQ0046	X'tal UM-5 23.505MHZ
X202	XK0002	X'tal CDBM455C7
X203	XQ0022	X'tal UM-1 12.8MHZ
FL201	XC0004	CeramicFilter, CFUM455E
FL202	XF0008	CeramicFilter, 23.05MHZ UM-5
CN202	UE0110	Connecter, 52030-1210
CN203	UE0110	Connecter, 52030-1210
JK201	UJ0015	Jack, HEC1781-01-020
JK202	UJ0022	Jack, HSJ1102-01-540
JK203	UJ0019	Jack, HSJ1423-01-010
RE201	UR0006	RE EC09P20-51
	MRCK08AA	Lead, #08 RED
	MRCK04AA	Lead, #04 RED
	YZ0058	Solder-Plated Wire
	QB0003	Ferrite Beads

KEY BOARD UNIT

PCB801	UP0210	DJP3 KEY BOARD
CN0801	UE0133	Connector DF9A-11P-1V(22)
R801	RK3024	Chip R, MCR03EZHJ680
R802	RK3024	Chip R, MCR03EZHJ680
D801	XL0016	Diode, SLM13MWT96B
D802	XL0016	Diode, SLM13MWT96B
D803	XL0016	Diode, SLM13MWT96B
D804	XL0016	Diode, SLM13MWT96B

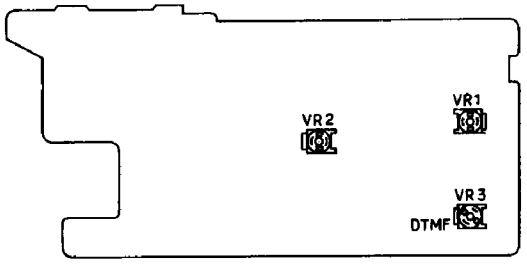
DTMF UNIT

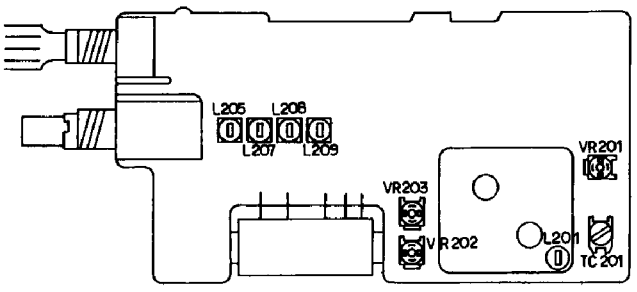
IC601	XA0169	IC CM8880-2PEIT
Q0601	XU0021	Transistor FMC3 T98
D0601	XD0129	Diode, 1SS318 TT11
C601	CU3035	Chip C, CM105 W5R 102K
C602	CU3035	Chip C, CM105 W5R 102K
C603	CU3059	Chip C, CM105 Y5V 104Z
C604	CS0050	Chip C, JMC 1A 475TRB
C605	CU3059	Chip C, CM105 Y5V 104Z
C606	CU3047	Chip C, CM105 W5R 103K
C607	CU3017	Chip C, CM105 CH 330K
C608	CU3017	Chip C, CM105 CH 330K
C609	CU3047	Chip C, CM105 W5R 103K
C610	CU3059	Chip C, CM105 Y5V 104Z
	UP0212	DJF1 DTMFBoard
R601	RK3018	Chip R, MCR03 EZHT220
R602	RK3066	Chip R, MCR03 EZHT224
R603	RK3066	Chip R, MCR03 EZHT224
R604	RK3062	Chip R, MCR03 EZHT104
R605	RK3059	Chip R, MCR03 EZHT563
R606	RK3058	Chip R, MCR03 EZHT473
R607	RK3050	Chip R, MCR03 EZHT103
R608	RK3038	Chip R, MCR03 EZHT102
R609	RK3056	Chip R, MCR03 EZHT333
X0601	XQ0021	X'tal DSMAT 3.58MHZ
	TT3008	Elastic Tube X'tal
	YZ0042	Cement G-17 1g
CN601	UE0134	Connector, DF9A-13P-1V(22)

Ref. No.	Part Code	Part Name and Number

■ ADJUSTMENT F1-T/S1-T

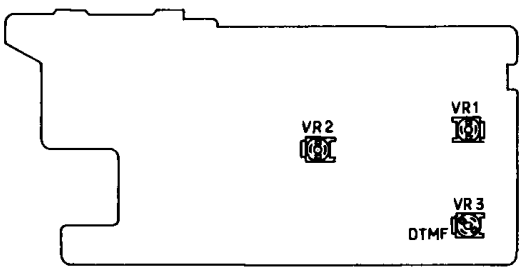
Item	Adjustment method	Spec.
1. Standard frequency	Transmit at 146.03 on L.C.D. board, then adjust TC201 so that the frequency is 146.03MHz ± 50Hz. Adjusting point TC201	146.03MHz ± 50Hz
2. Output power 1) High power	Transmit at 146.03MHz, then adjust VR202 so that the output power is 5.0W when operating power source at 13.8V. Adjusting point(s) VR202 main board	5W ± 0.1W
2) Middle power	Transmit at 146.03MHz, then adjust VR203 so that the output power is 1.0W when operating power source at 13.8V. Adjusting point(s) VR203 main board	1W ± 0.1W
3) Low power	Transmit at 146.03MHz, then verify that the output power is between 80mW and 200mW.	
3. Transmitting spurious	Transmit at 1144.03Hz, 146.03MHz and 147.99MHz, then verify the transmitting spurious is as follows when operating voltage is between 6V and 14V. High power ..... under −60dB Low power..... under −50dB Also verify no queer oscillation is occurring.	High Power under −60dB Low Power under −50dB
4. Modulation 1) MIC modulation adjustment	Transmit at 146.03MHz and input low frequency of 1kHz 50mV from MIC input terminal. Then adjust VR201 so that the modulation is 4.5kHz. Adjusting point(s) VR201 main board	4.5kHz ± 0.1kHz
2) DTMF deviation	Transmit at 146.03MHz and press the ten-key [1]. Then adjust the VR3 so that the modulation is 3.1kHz. Adjusting point(s) VR3 CPU board	3.1kHz ± 0.1kHz
3) Sub-audible tone modulation	Set the sub-audible tone at 88.5MHz, then adjust VR1 so that the frequency is 800Hz when transmitting at 146.03MHz. Adjusting point(s) VR1 CPU board	800Hz ± 100Hz
5. Standard VCO voltage	At the receiving condition, adjust L104 so that the voltage of P/D is 0.7V with the frequency set at 146.03MHz. Adjusting point(s) VCO board L204 At the transmitting condition verify that the voltage of P/D is between 0.5V and 1.0V with the frequency set at 145.05MHz.	0.8 ± 0.1V
6. AIR BAND	At the receiving frequency of 125.03MHz, input the signal of AM 1kHz 30% output 8dBμ (disconnection terminal) from SG. Then verify that the S/N is more than 10dB. And, receivable from 118.00MHz to 142.99MHz.	
7. VHF front-end adjusting	At the receiving frequency of 146.03MHz, adjust L205, L207, L208 and L209 so that the 12dB sind gets maximum sensitivity. Adjusting point(s) L205, L207, L208, L209 main board	
8. S meter	At the receiving frequency of 146.03MHz input the signal of 20dBμ from the transceiver tester. Then adjust VR2 so that the FU11 in S meter starts lighting. Adjusting point(s) VR2 CPU board	

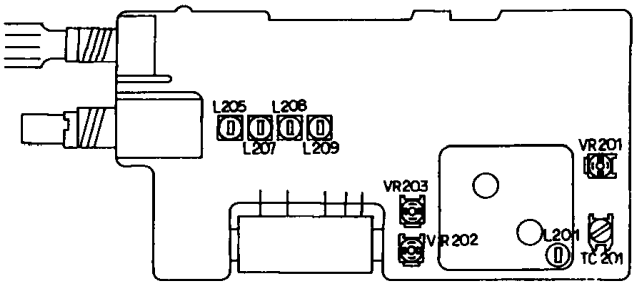




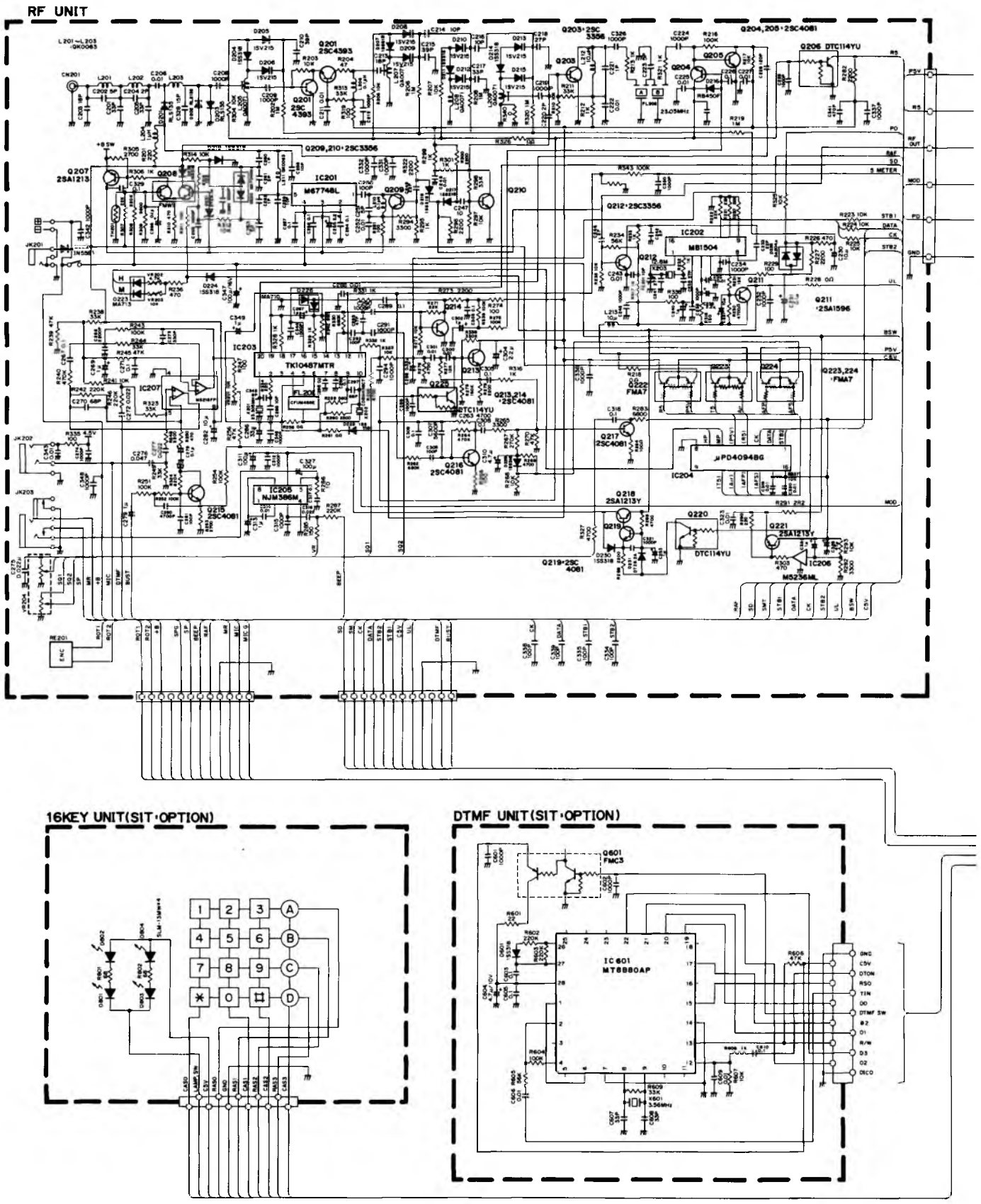
■ ADJUSTMENT F1-E/S1-E

Item	Adjustment method	Spec.
1. Standard frequency	Transmit at 145.05 on L.C.D. board, then adjust TC201 so that the frequency is 145.05MHz ± 50Hz. Adjusting point(s) TC201	145.05MHz ± 50Hz
2. Output power 1) High power	Transmit at 145.05MHz, then adjust VR202 so that the output power is 5.0W when operating power source at 13.8V. Adjusting point(s) VR202 main board	5W ± 0.1W
2) Middle power	Transmit at 145.05MHz, then adjust VR203 so that the output power is 1.0W when operating power source at 13.8V. Adjusting point(s) VR203 main board	1W ± 0.1W
3) Low power	Transmit at 145.05MHz, then verify that the output power is between 80mW and 200mW.	
3. Transmitting spurious	Transmit at 145.05MHz, 144.05MHz and 145.95MHz, then verify the transmitting spurious is as follows when operating voltage is between 6V and 14V. High power ..... under −60dB Low power..... under −50dB Also verify no queer oscillation is occurring.	High Power under −60dB Low Power under −50dB
4. Modulation 1) MIC modulation adjustment	Transmit at 145.05MHz and input low frequency of 1kHz 50mV from MIC input terminal. Then adjust VR201 so that the modulation is 4.5kHz. Adjusting point(s) VR201 main board	4.5kHz ± 0.1kHz
2) DTMF deviation	Transmit at 145.05MHz and press the ten-key [1]. Then adjust the VR3 so that the modulation is 3.1kHz. Adjusting point(s) VR3 CPU board	3.1kHz ± 0.1kHz
3) Tone-burst modulation	Transmit at 145.05MHz, then adjust VR1 so that the modulation is 3.0kHz. Verify that the tone-burst is in the range of 1,750Hz ± 20Hz at this time. Adjusting point(s) VR1 CPU board	3.0kHz ± 0.1kHz
5. Standard VCO voltage	At the receiving condition, adjust L104 so that the voltage of P/D is 0.7V with the frequency set at 145.05MHz. Adjusting point(s) VCO board L204 At the transmitting condition verify that the voltage of P/D is between 0.5V and 1.0V with the frequency set at 145.05MHz.	0.7V ± 0.1V
6. AIR BAND	At the receiving frequency of 125.03MHz, input the signal of AM 1kHz 30% output 8dBμ (disconnection terminal) from SG. Then verify that the S/N is more than 10dB. And, receivable from 118.00MHz to 142.99MHz.	
7. VHF front-end adjusting	At the receiving frequency of 145.05MHz, adjust L205, L207, L208 and L209 so that the 12dB sind gets maximum sensitivity. Adjusting point(s) L205, L207, L208, L209 main board	
8. S meter	At the receiving frequency of 145.95MHz input the signal of 20dBμ from the transceiver tester. Then adjust VR2 so that the FU11 in S meter starts lighting. Adjusting point(s) VR2 CPU board	

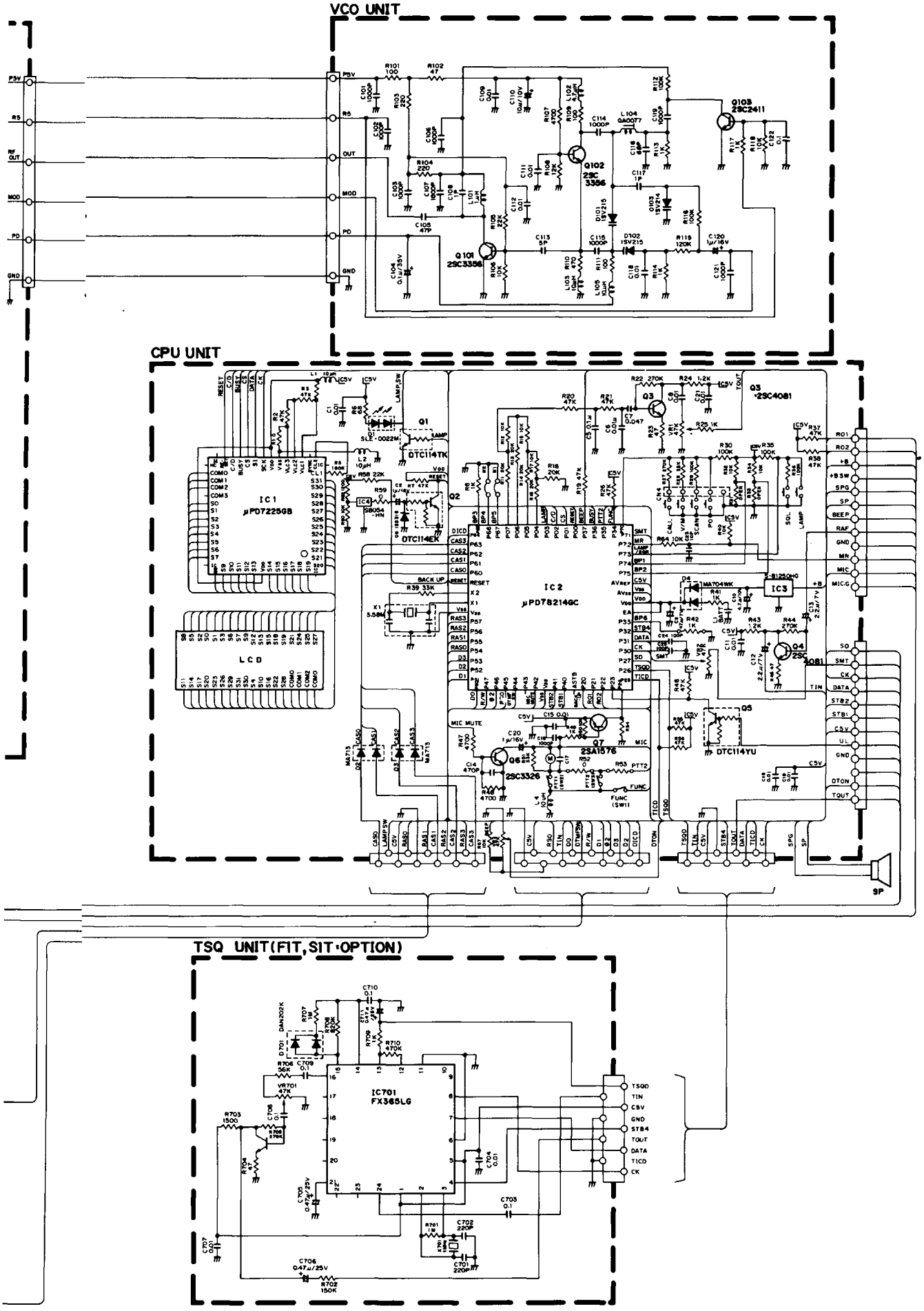




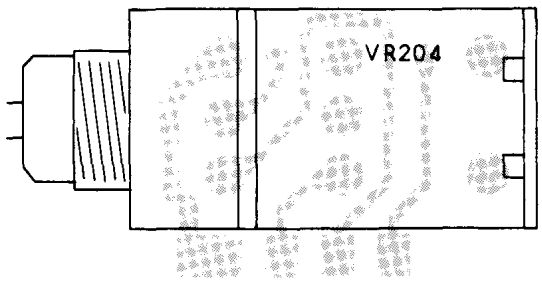
■SCHEMATIC DIAGRAM

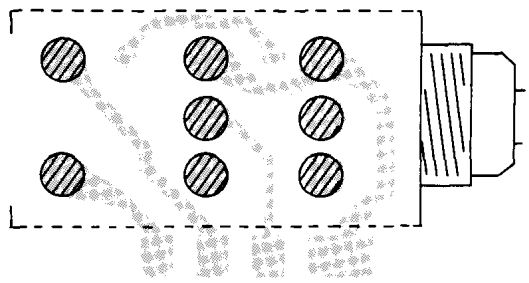


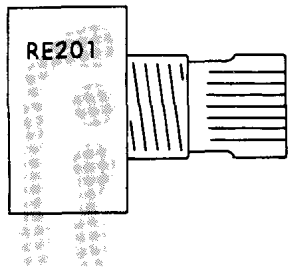
Specifications are subject to change without notice or obligation.

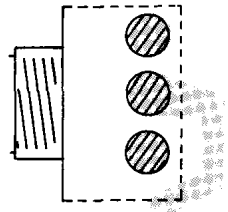

VCO UNIT
CPU UNIT
TSQ UNIT(FIT,SIT·OPTION)
IC1 μPD7225GB
IC2 μPD78214GC
IC3
IC701 FX365LG
LCD
Q101 2SC3356
Q102 2SC 3356
Q103 2SC2411
Q1 DTC114TK
Q2 DTC114EK
Q3 2SC4081
Q4 2SC 4081
Q5 DTC114YU
Q6 2SC3326
Q7 2SA1576
D101 1SV215
D102 1SV215
D103 1SV214
D701 DAN202K
D4 MA704WK
MA713
MA715
PSV
RS
RF OUT
OUT
MOD
PD
GND
SP

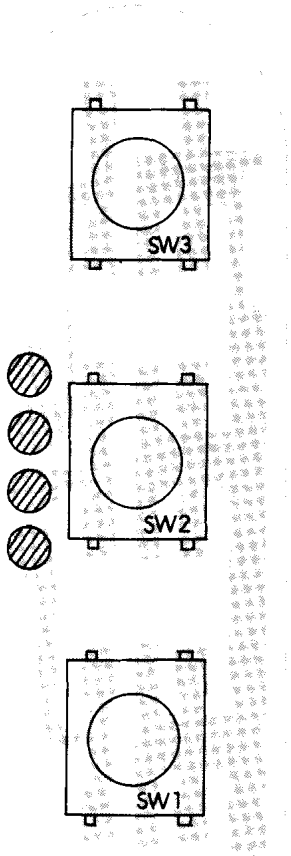
■ VR.RE.SW.PC BOARDS



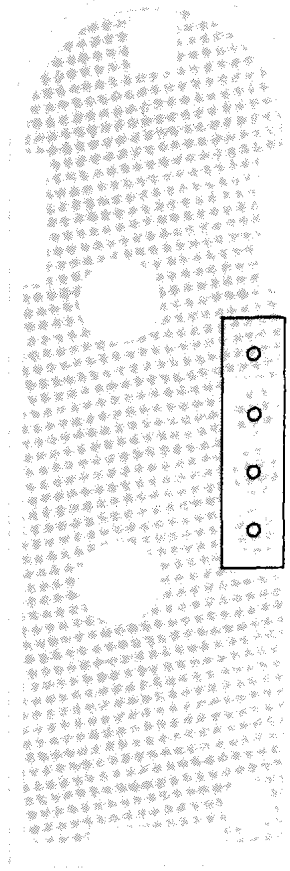






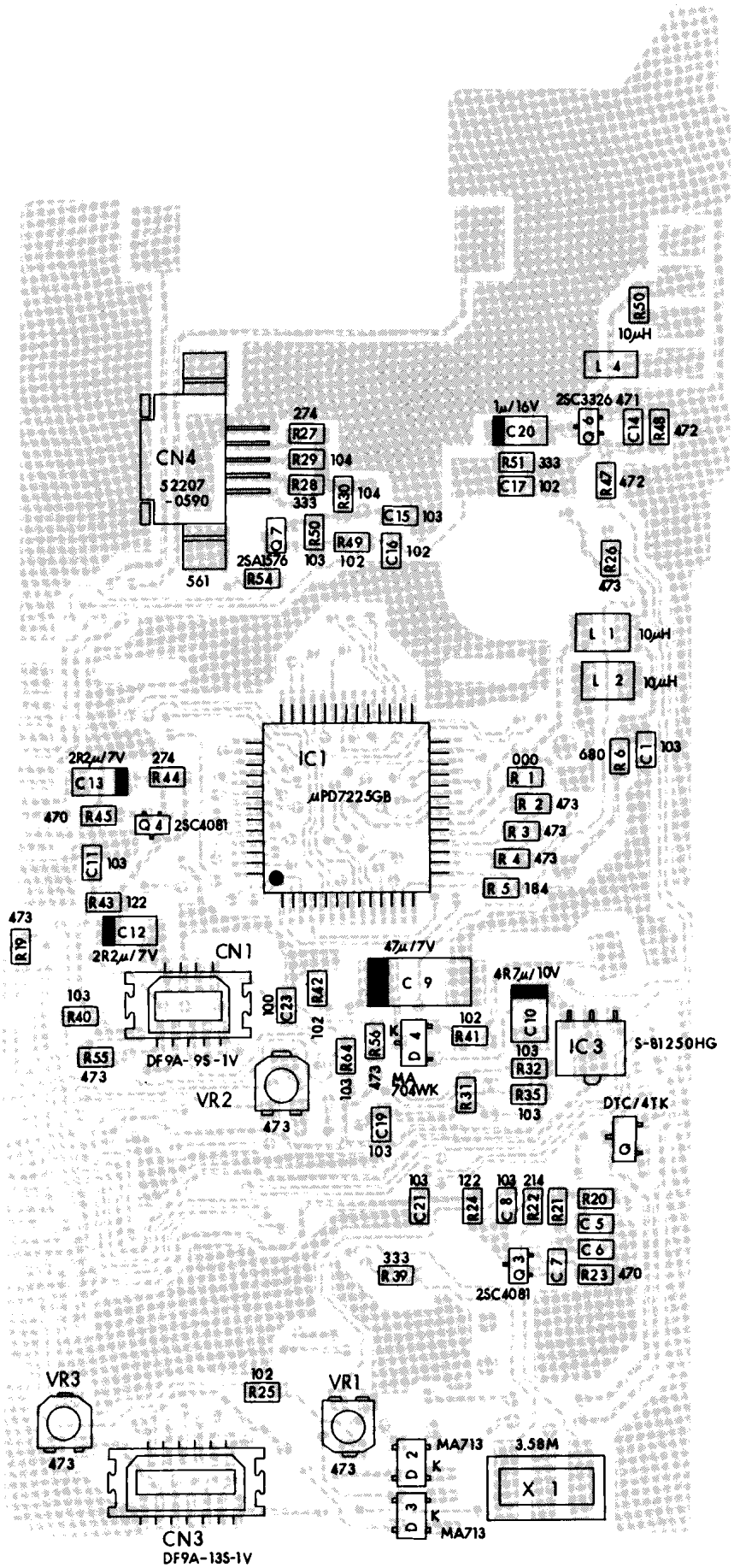


SW1.2.3 (SKHUAB)

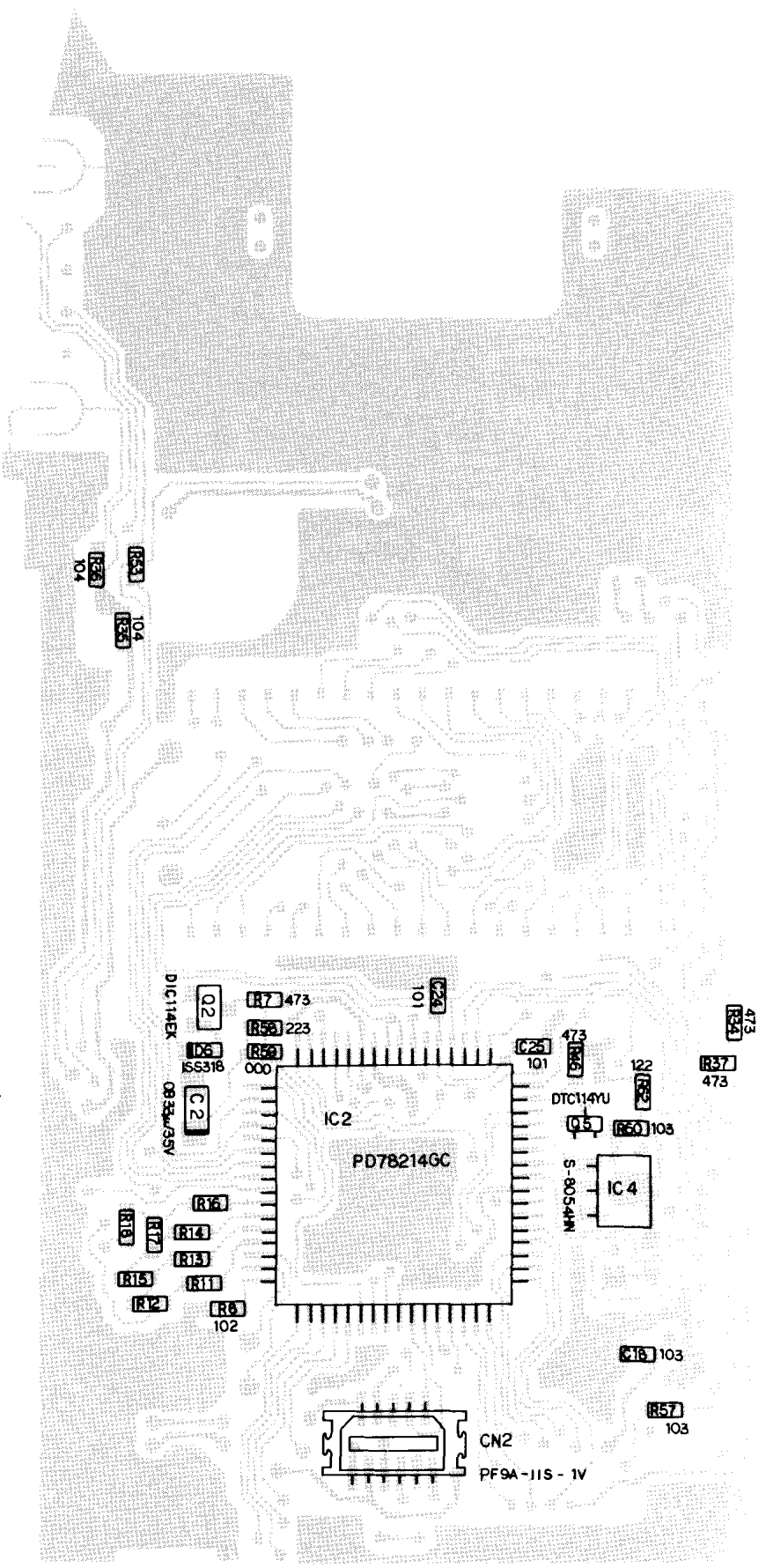


■CPU PC BOARD

Side A



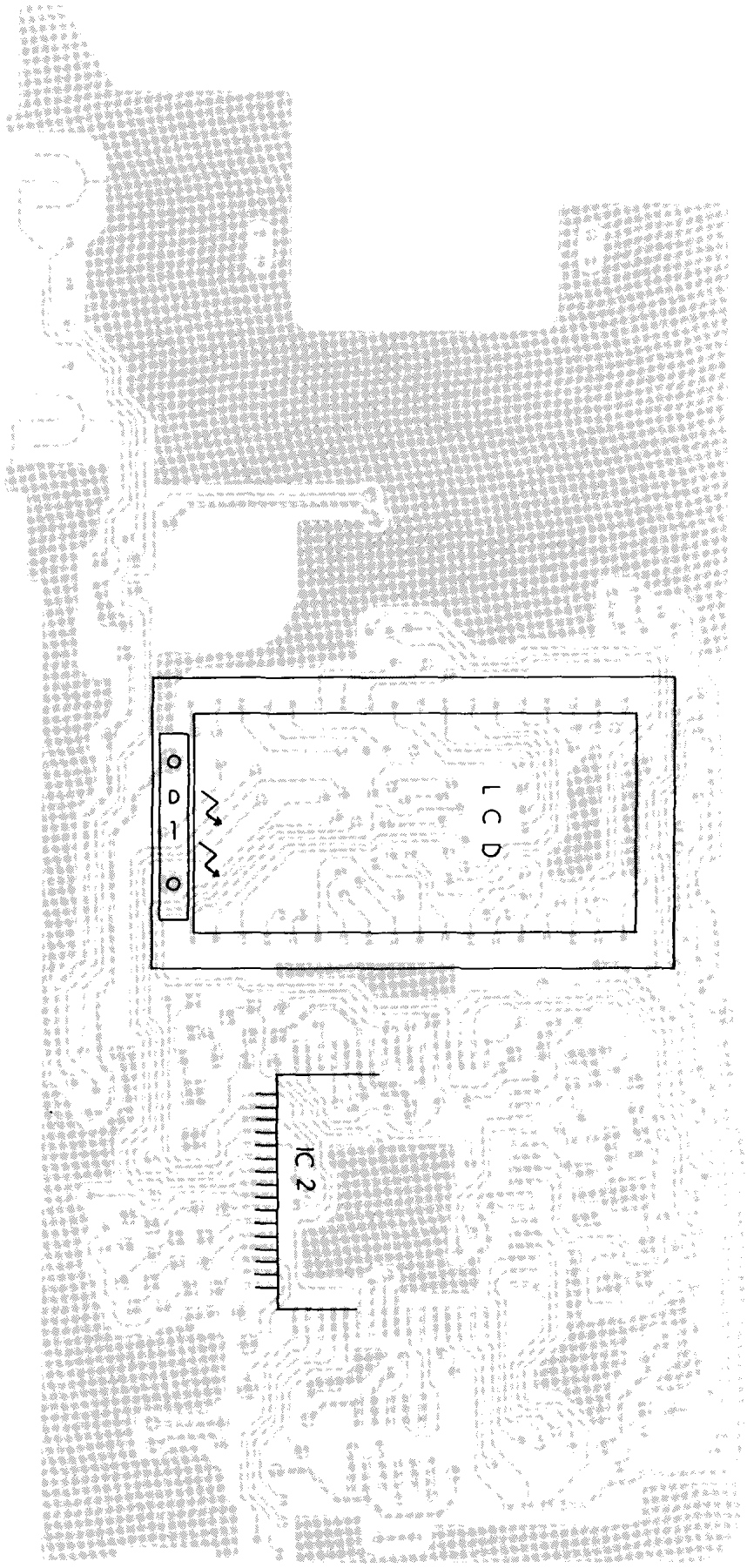
Side B


R36
104
R35
104
Q2
DIC114EK
D6
1SS318
C2
0.33μ/35V
R7 473
R58 223
R59
000
C23
101
C25
101
R61 473
R62 122
R34 473
R37 473
DTC114YU
Q5
R60 103
IC2
PD78214GC
S-80S44HN
IC4
R16
R18
R17
R14
R13
R15
R11
R12
R6
102
C18 103
R57
103
CN2
PF9A-11S-1V

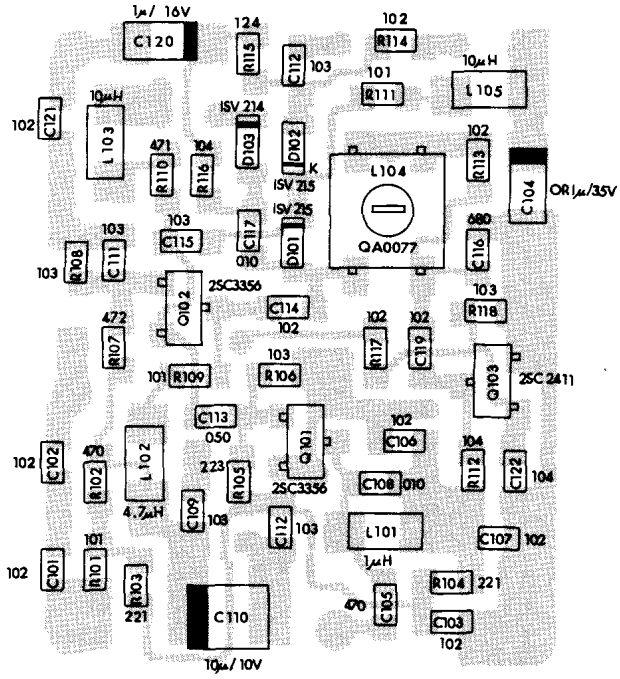
Li-BATT
Li-BATT
BR-1225-IVF
MIC
WM-60AT
W3
W4
UP0199
Side A'

TZ0022

Side B′



■VCO PC BOARD


1μ/ 16V
C120
124
R115
C112
103
102
R114
10μH
L105
101
R111
10μH
L103
102
C121
ISV 214
D103
D102
K
ISV 215
471
R110
104
R116
L104
QA0077
102
R113
C104
OR1μ/35V
ISV 215
D101
103
C115
C117
Q110
680
C116
103
R108
C111
2SC3356
Q102
C114
102
103
R118
472
R107
102
R117
102
C119
103
R106
101
R109
Q103
2SC2411
C113
050
Q101
102
C106
104
R112
C122
104
102
C102
470
R102
L102
4.7μH
223
R105
2SC3356
C108
010
C109
103
C12
103
L101
1μH
C107
102
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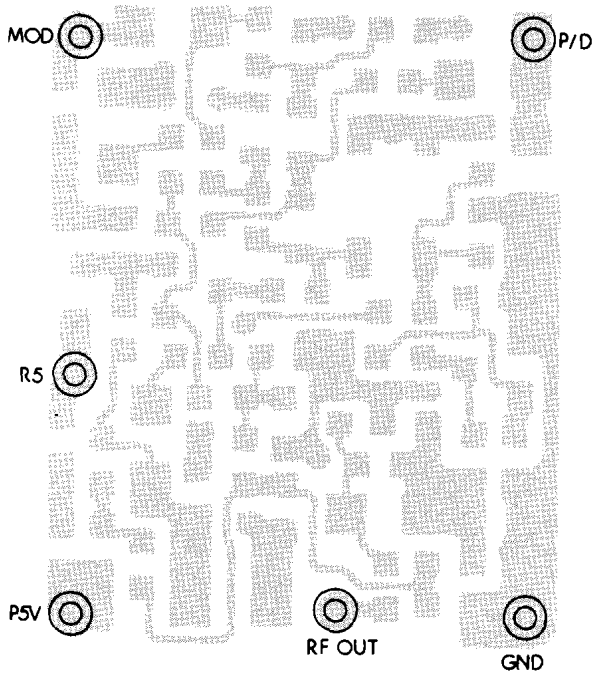
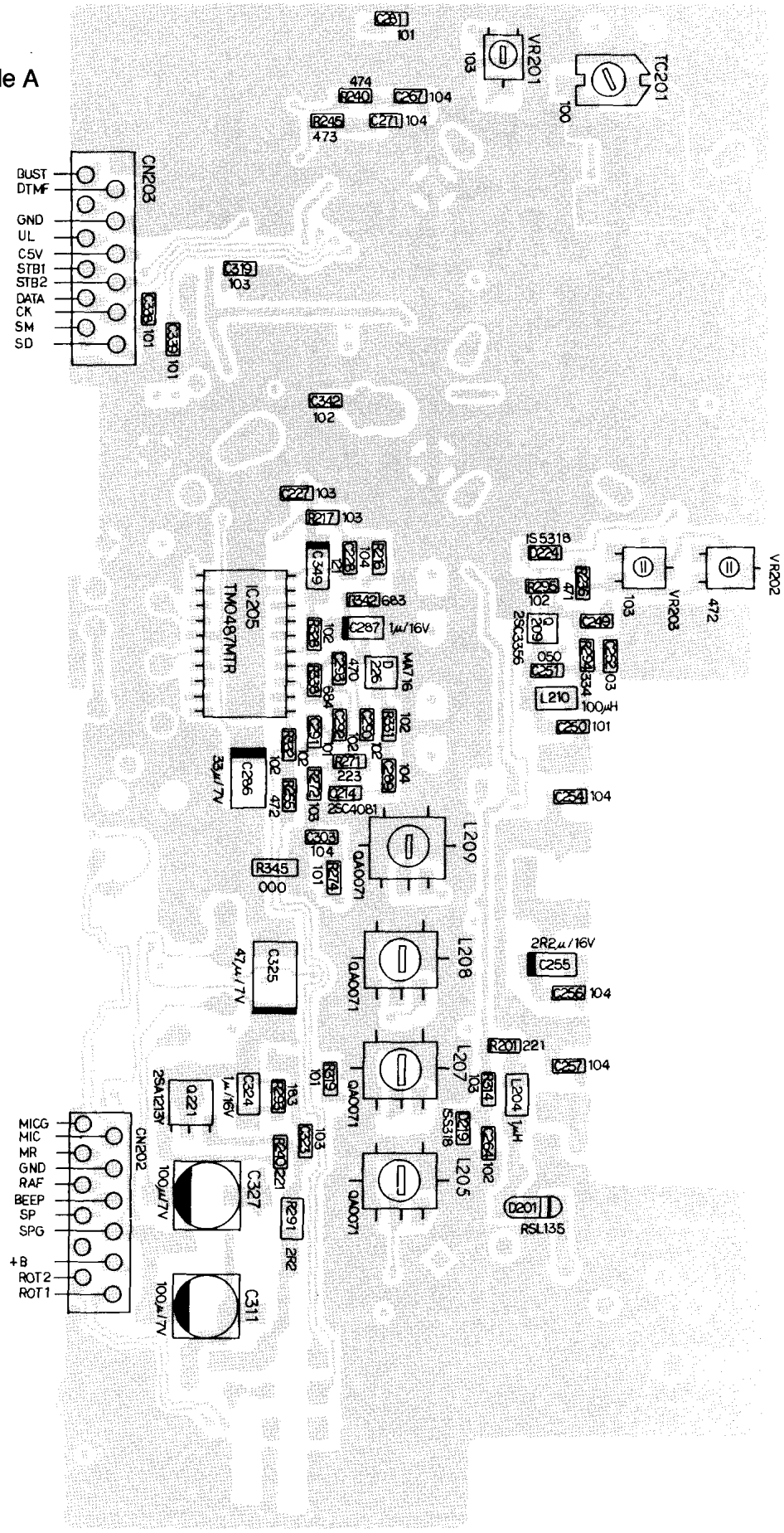
R101
C101
102
R103
221
C110
10μ/ 10V
470
C105
R104
221
C103
102

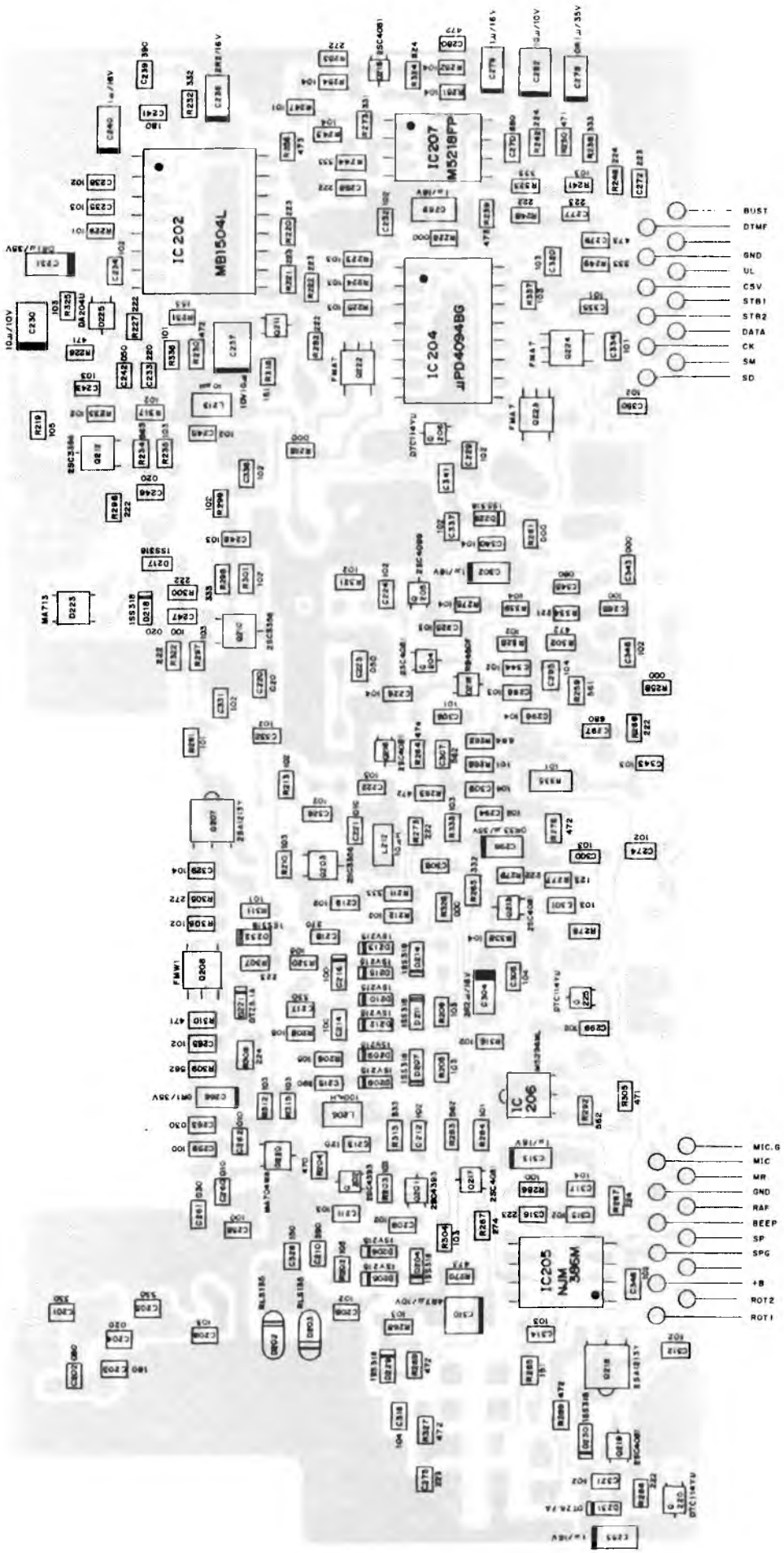

MOD
P/D
R5
P5V
RF OUT
GND

■MAIN PC BOARD

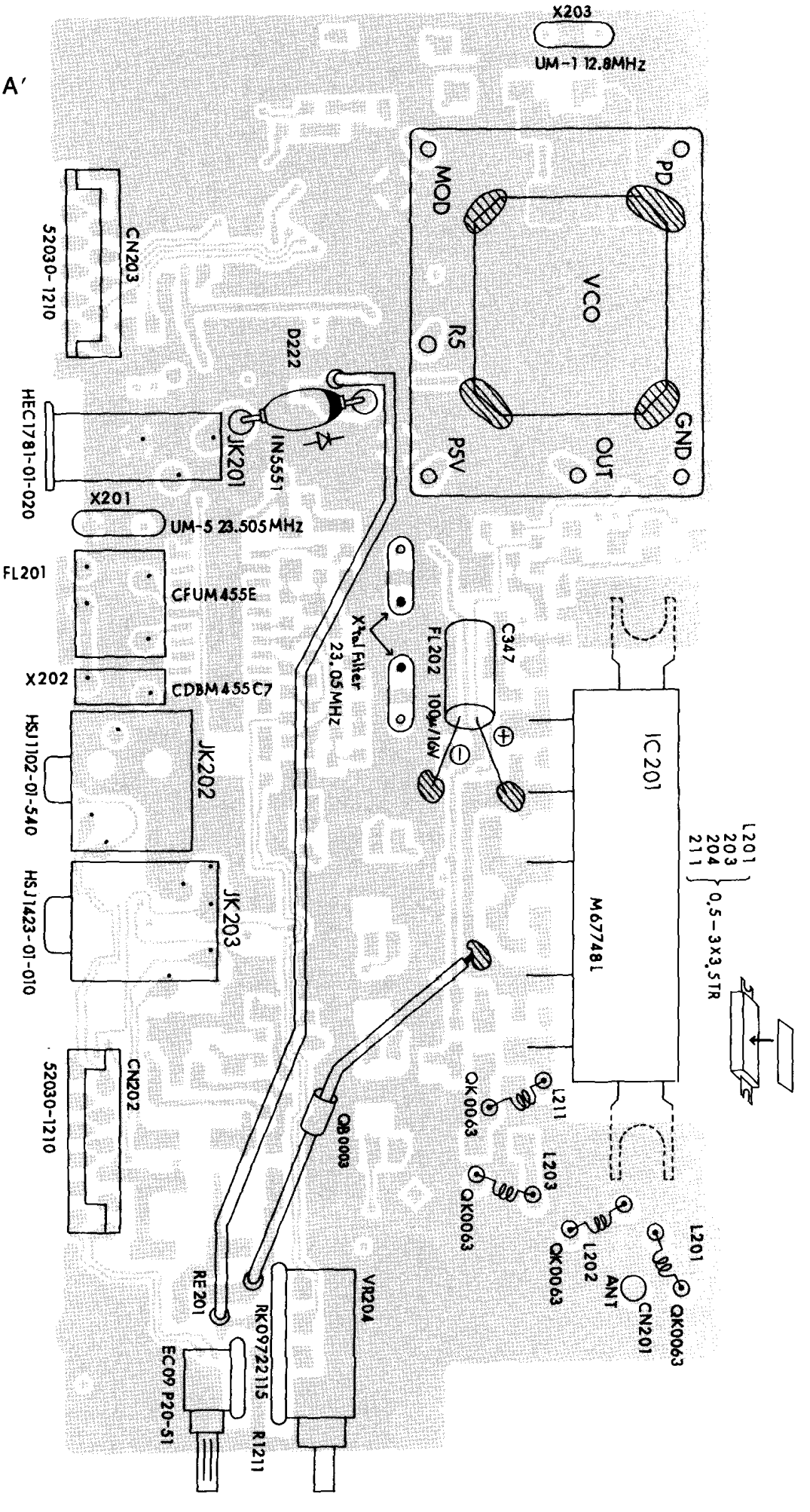
Side A

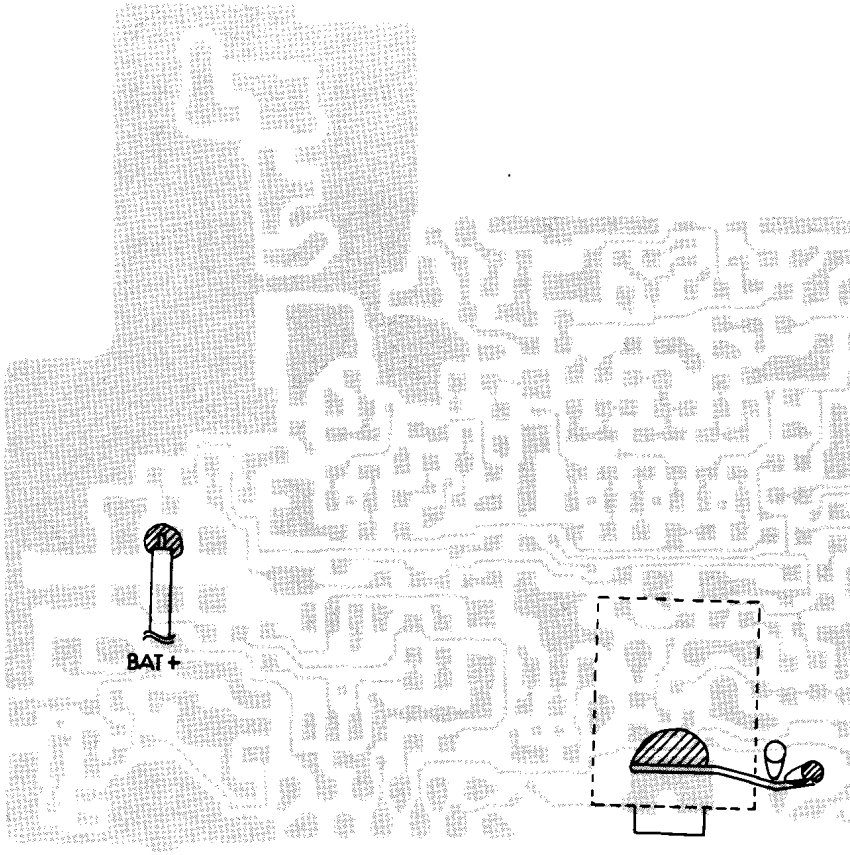


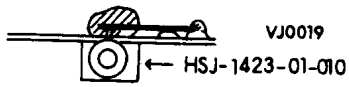
Side B


IC202
MB1504L
IC207
M5218FP
IC204
μPD4094BG
IC206
IC205
NJM
386M
BUST
DTMF
GND
UL
CSV
STB1
STB2
DATA
CK
SM
SD
MIC.G
MIC
MR
GND
RAF
BEEP
SP
SPG
+B
ROT2
ROT1

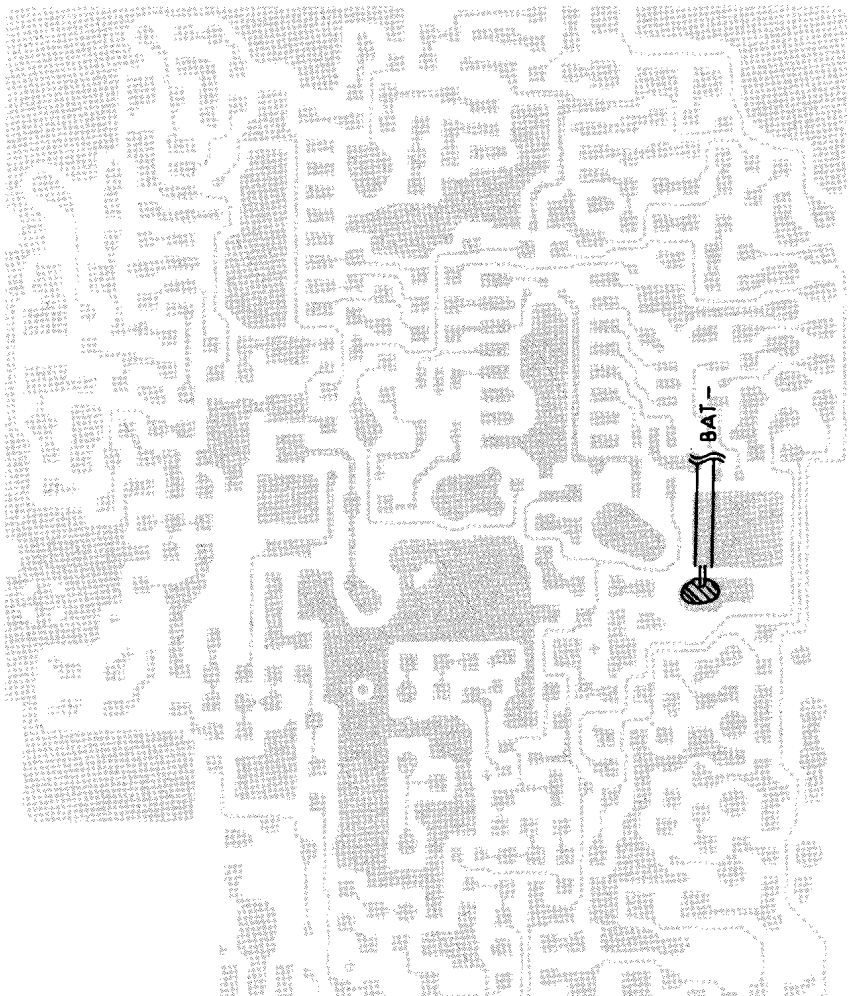
Side A'


X203
UM-1 12.8MHz
MOD
PD
VCO
R5
PSV
OUT
GND
52030-1210
CN203
D222
HEC1781-01-020
JK201
IN5551
X201
UM-5 23.505MHz
FL201
CFUM455E
X202
CDBM455C7
HSJ1102-01-540
JK202
HSJ1423-01-010
JK203
52030-1210
CN202
X'tal Filter
23.05MHz
FL202
C347
100μ/16V
IC201
M67748L
L201
203
204
211
0,5-3X3,5TR
QK0063
L211
QK0063
L203
QK0063
L202
ANT
CN201
L201
QK0063
QB0003
RE201
RK09722115
VR204
EC09P20-51
R1211


BAT+

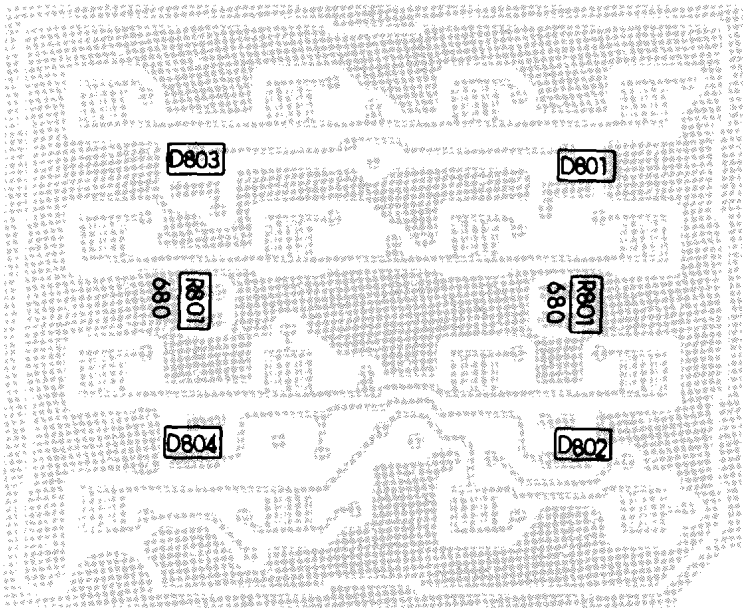

VJ0019
← HSJ-1423-01-010

Side B′

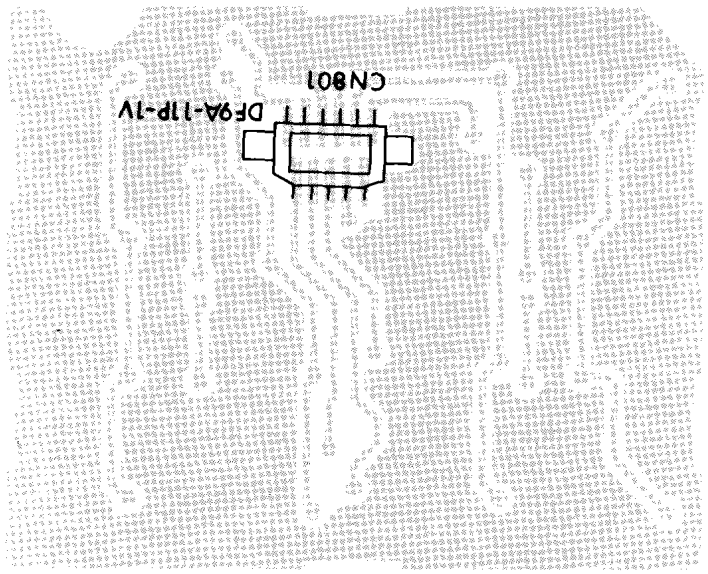


■KEY BOARD

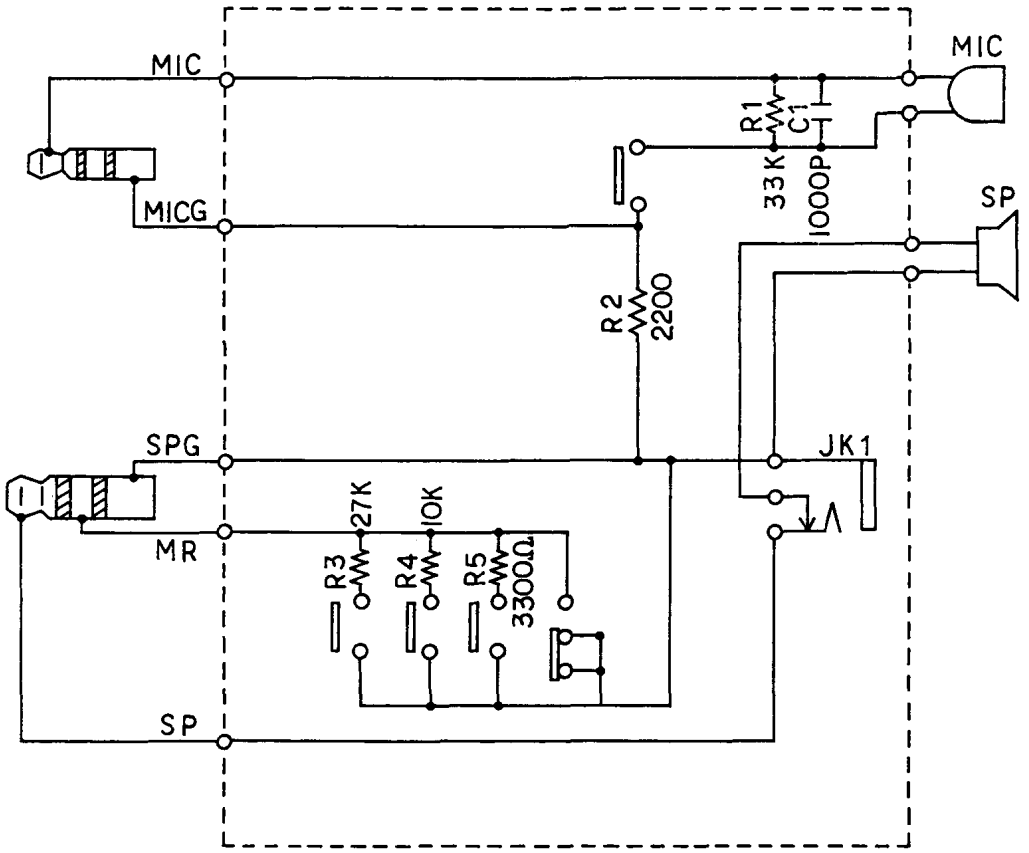
Side A



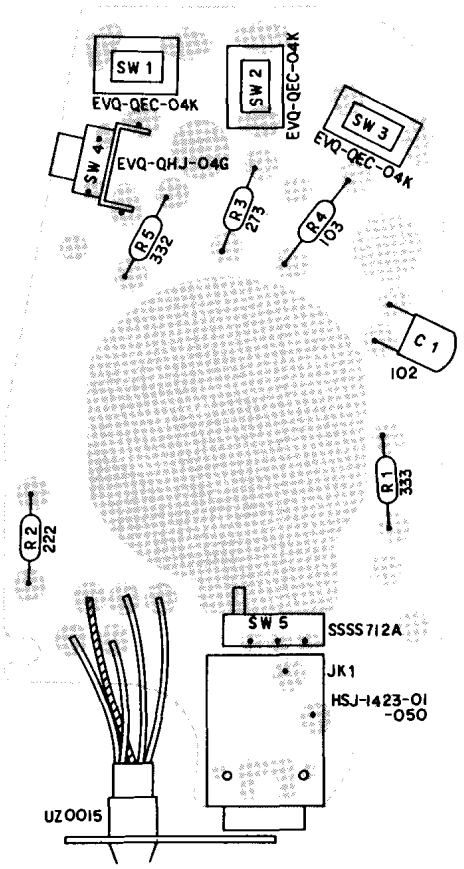
Side B



EMS-8 (REMOTE CONTROL SPEAKER/MICROPHONE)



Ref. No.	Part Code	Part Name and Number
R	RD0039U	Chip R, 1/4W 222
R1	RD0059	Chip R, 1/4W 333
R2	RD0039	Chip R, 1/4W 222
R3	RD0057	Chip R, 1/4W 273
R4	RD0052	Chip R, 1/4W 103
R5	RD0042	Chip R, 1/4W 332
C1	CK0003	Ceramic C, 50V 102Z
SW1	UU0007	Tact Switch, EVQ-QEC 04K
SW2	UU0007	Tact Switch, EVQ-QEC 04K
SW3	UU0007	Tact Switch, EVQ-QEC 04K
SW4	UU0009	Tact Switch, EVQ-QHJ 04G
SW5	US0018	Slide Switch, SSSS712A
	UP0211	EMS8 Board
JK1	UJ0016	Jack HSJ1423-01-050

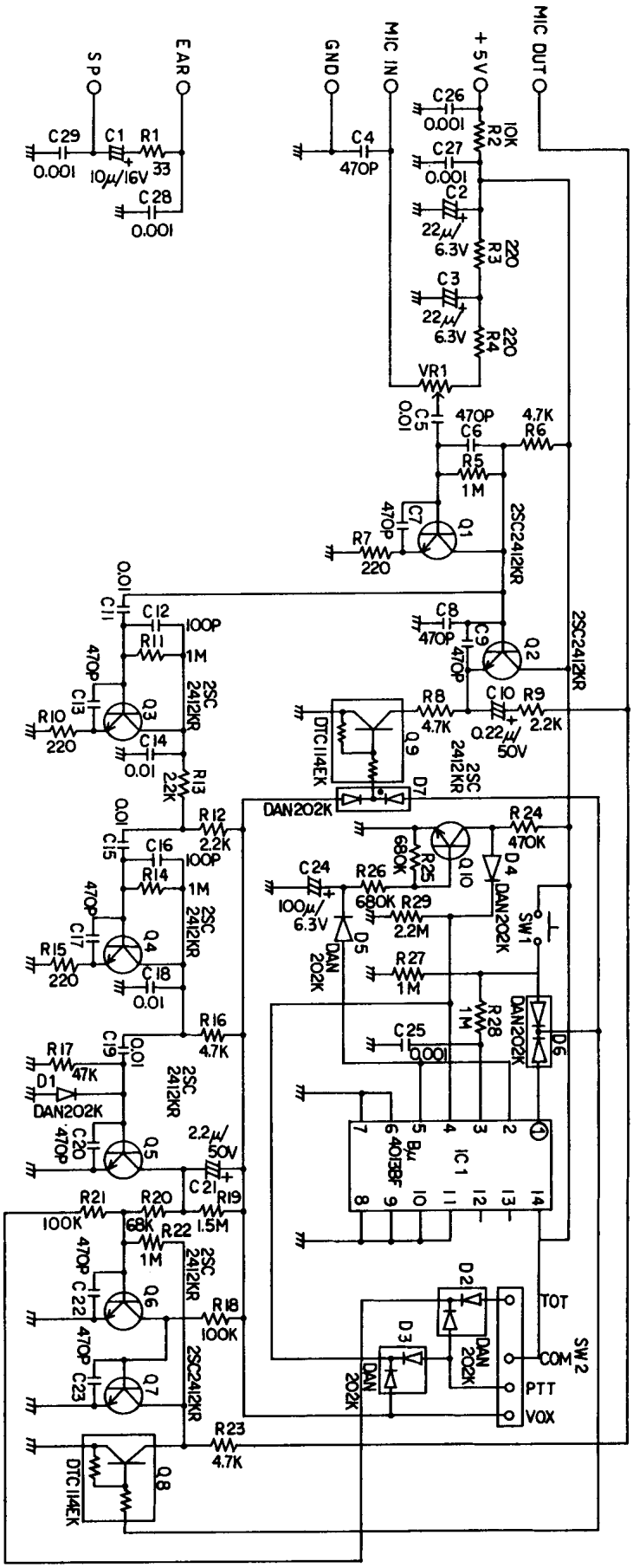


EME-10K (HEADSET W/PTT VOX)

Ref. No.	Part Code	Part Name and Number
C1	CE0044	Chemical C, 1.6V 10μF MS5
C2	CE0034	Chemical C, 6.3V 22μF MS5
C3	CE0034	Chemical C, 6.3V 22μF MS5
C4	CU3031	Chip C, CM105 W5R 471K 50VAT
C5	CU3052	Chip C, CM105 W5R 103K 25VAT
C6	CU3031	Chip C, CM105 W5R 471K 50VAT
C7	CU3031	Chip C, CM105 W5R 471K 50VAT
C8	CU3031	Chip C, CM105 W5R 471K 50VAT
C9	CU3031	Chip C, CM105 W5R 471K 50VAT
C10	CE0109	Chemical C, 50V 0.22μF MS5
C11	CU3052	Chip C, CM105 W5R 103K 25VAT
C12	CU3023	Chip C, CM105 CH 101K 50VAT
C13	CU3031	Chip C, CM105 W5R 471K 50VAT
C14	CU3052	Chip C, CM105 W5R 103K 25VAT
C15	CU3052	Chip C, CM105 W5R 103K 25VAT
C16	CU3023	Chip C, CM105 CH 101K 50VAT
C17	CU3031	Chip C, CM105 W5R 471K 50VAT
C18	CU3052	Chip C, CM105 W5R 103K 25VAT
C19	CU3052	Chip C, CM105 W5R 103K 25VAT
C20	CU3031	Chip C, CM105 W5R 471K 50VAT
C21	CE0200	Chemical C, 50V 2.2μF UW
C22	CU3031	Chip C, CM105 W5R 471K 50VAT
C23	CU3031	Chip C, CM105 W5R 471K 50VAT
C24	CE0037	Chemical C, 6.3V 100μF MS5
C25	CU3035	Chip C, CM105 W5R 102K 50VAT
C26	CU3035	Chip C, CM105 W5R 102K 50VAT
C27	CU3035	Chip C, CM105 W5R 102K 50VAT
C28	CU3035	Chip C, CM105 W5R 102K 50VAT
C29	CU3035	Chip C, CM105 W5R 102K 50VAT
D1	XD0040	Diode, DAN202K T96
D2	XD0040	Diode, DAN202K T96
D3	XD0040	Diode, DAN202K T96
D4	XD0040	Diode, DAN202K T96
D5	XD0040	Diode, DAN202K T96
D6	XD0040	Diode, DAN202K T96
D7	XD0040	Diode, DAN202K T96
Q1	XT0037	Transistor, 2SC2412K T96R
Q2	XT0037	Transistor, 2SC2412K T96R
Q3	XT0037	Transistor, 2SC2412K T96R
Q4	XT0037	Transistor, 2SC2412K T96R
Q5	XT0037	Transistor, 2SC2412K T96R
Q6	XT0037	Transistor, 2SC2412K T96R
Q7	XT0037	Transistor, 2SC2412K T96R

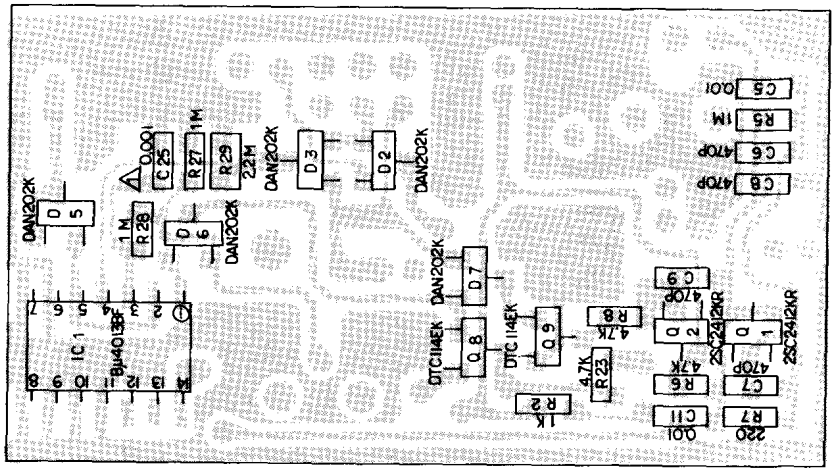
Ref. No.	Part Code	Part Name and Number
Q8	XU0012	Digital Transistor, DTC114EKT96
Q9	XU0012	Digital Transistor, DTC114EKT96
Q10	XT0037	Transistor, 2SC2412K T96R
R1	RK3020	Chip R, MCR03EZ0J 330
R2	RK3038	Chip R, MCR03EZ0J 102
R3	RK3030	Chip R, MCR03EZ0J 221
R4	RK3030	Chip R, MCR03EZ0J 221
R5	RK3074	Chip R, MCR03EZ0J 105
R6	RK3046	Chip R, MCR03EZ0J 472
R7	RK3030	Chip R, MCR03EZ0J 221
R8	RK3046	Chip R, MCR03EZ0J 472
R9	RK3042	Chip R, MCR03EZ0J 222
R10	RK3030	Chip R, MCR03EZ0J 221
R11	RK3074	Chip R, MCR03EZ0J 105
R12	RK3042	Chip R, MCR03EZ0J 222
R13	RK3042	Chip R, MCR03EZ0J 222
R14	RK3074	Chip R, MCR03EZ0J 105
R15	RK3030	Chip R, MCR03EZ0J 221
R16	RK3046	Chip R, MCR03EZ0J 472
R17	RK3058	Chip R, MCR03EZ0J 473
R18	RK3062	Chip R, MCR03EZ0J 104
R19	RK3076	Chip R, MCR03EZ0J 155
R20	RK3060	Chip R, MCR03EZ0J 683
R21	RK3062	Chip R, MCR03EZ0J 104
R22	RK3074	Chip R, MCR03EZ0J 105
R23	RK3046	Chip R, MCR03EZ0J 472
R24	RK3070	Chip R, MCR03EZ0J 474
R25	RK3072	Chip R, MCR03EZ0J 684
R26	RK3072	Chip R, MCR03EZ0J 684
R27	RK3074	Chip R, MCR03EZ0J 105
R28	RK3074	Chip R, MCR03EZ0J 105
R29	RK0090	Chip R, MCR10EZHJ 225
IC1	XA0123	IC, BU4013BF-T1
SW1	UU0009	Tact Switch, EVQ-QHJ-04G
SW2	US0016	Slide Switch, SSSS913L2
VR1	RH0062	Semi Valuable VR, EVM-LIG A00B23
	UP0187A	EME-10 Board

SCHEMATIC DIAGRAM OF EME-10K

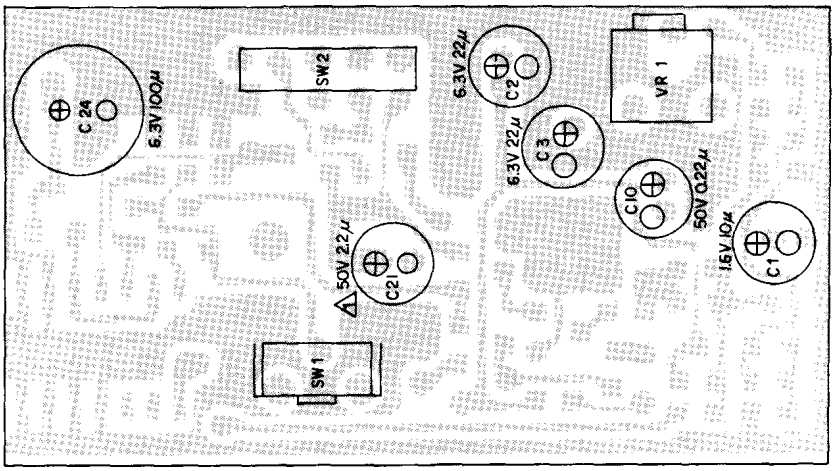


EME-10K PC BOARD

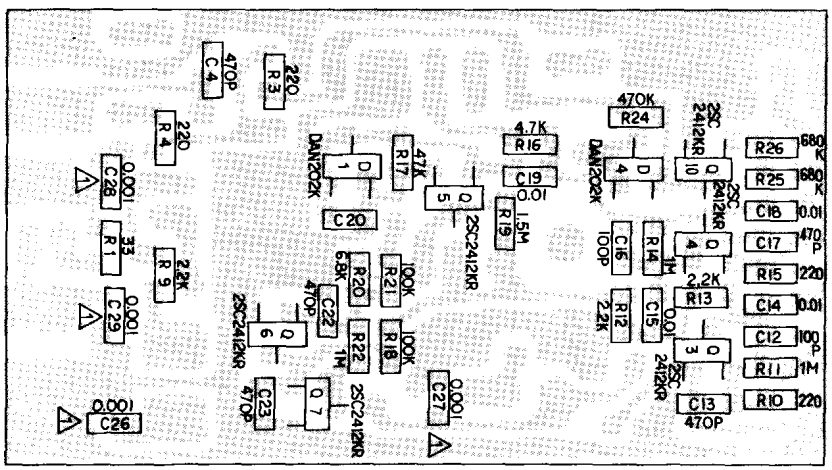
Side A



Side A′



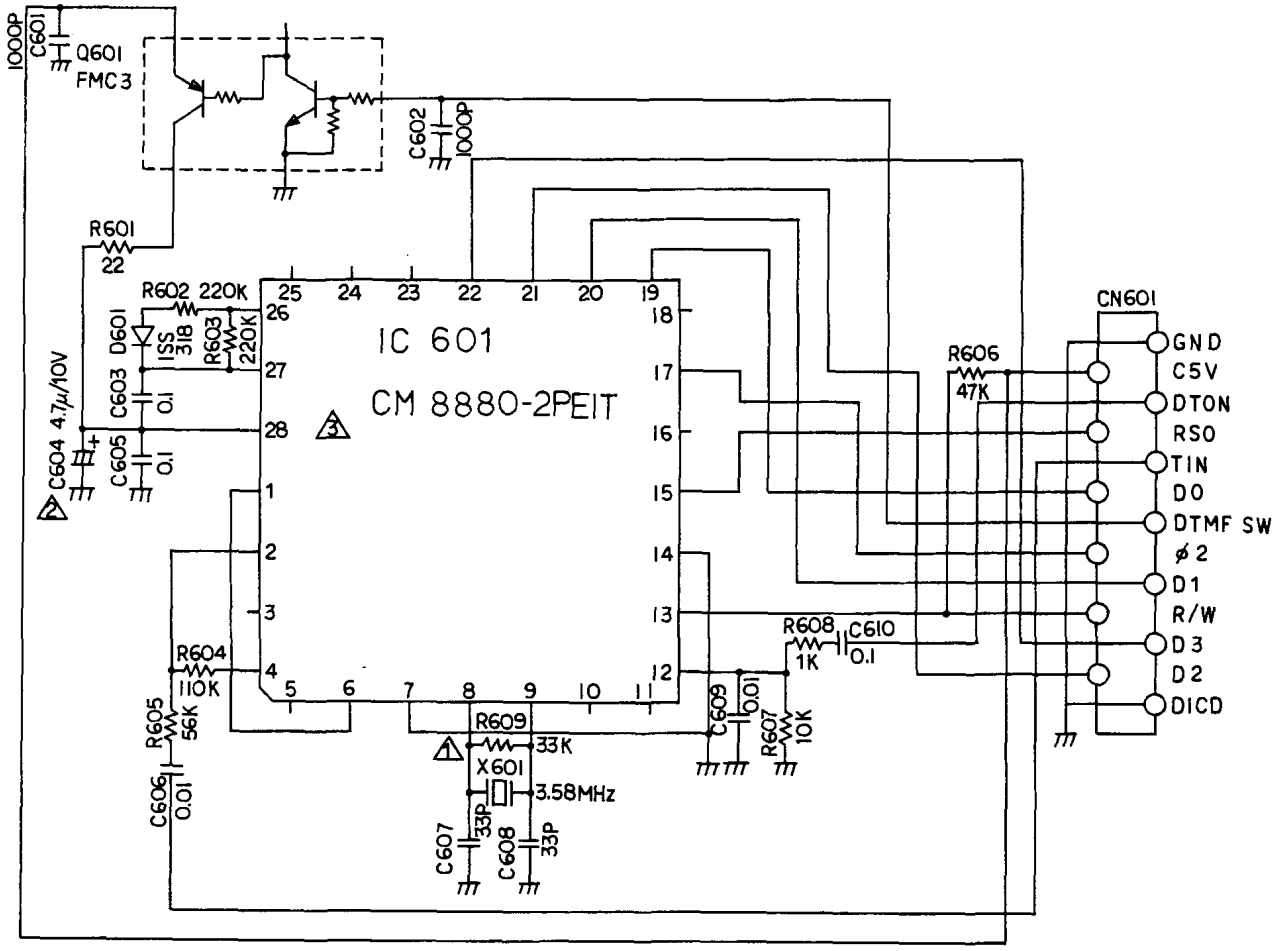
Side B



EJ-10U (DTMF ENC/DEC UNIT)

Ref. No.	Part Code	Part Name and Number
IC601	XA0169	IC, CM8880-2PEIT
Q0601	XU0021	Transistor, FMC3 T98
D0601	XD0129	Diode, 1SS318 TT11
	UP0212	DTMF Board
X0601	XQ0021	X'talDSMAT 3.58MHZ
	TT3008	Elastic Tube
CN601	UE0134	Connector, DF9A-13P-1V(22)
	YZ0042	Cement G-17 1g
	YZ0082	Mending Tape, 12mmW
C601	CU3035	Chip C, CM105 W5R 102K
C602	CU3035	Chip C, CM105 W5R 102K
C603	CU3059	Chip C, CM105 Y5V 104Z
C604	CS0050	Chip C, TMC-1A 475MTR
C605	CU3059	Chip C, CM105 Y5V 104Z

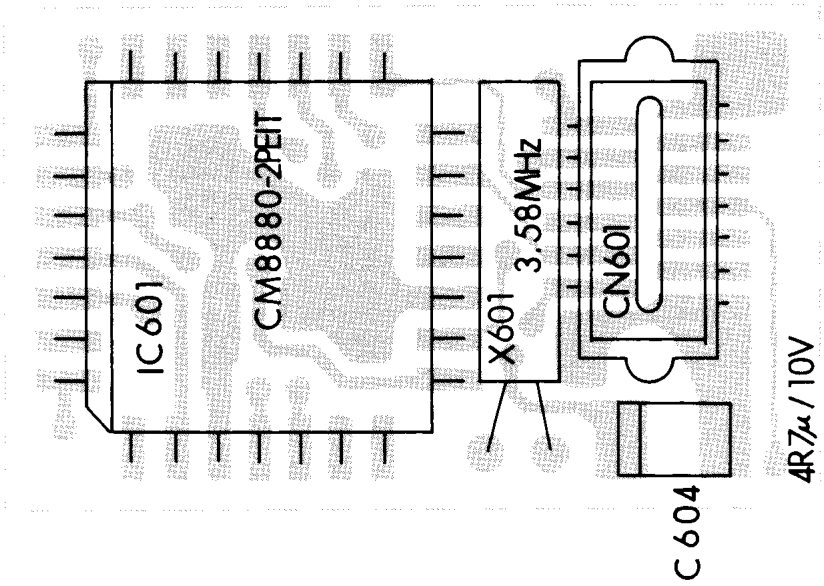
Ref. No.	Part Code	Part Name and Number
C606	CU3047	Chip C, CM105 W5R 103K
C607	CU3017	Chip C, CM105 CH 330K
C608	CU3017	Chip C, CM105 CH 330K
C609	CU3047	Chip C, CM105 W5R 103K
C610	CU3059	Chip C, CM105 Y5V 104Z
R601	RK3018	Chip R, MCR03 EZHJ220
R602	RK3066	Chip R, MCR03 EZHJ224
R603	RK3066	Chip R, MCR03 EZHJ224
R604	RK3062	Chip R, MCR03 EZHJ104
R605	RK3059	Chip R, MCR03 EZHJ563
R606	RK3058	Chip R, MCR03 EZHJ473
R607	RK3050	Chip R, MCR03 EZHJ103
R608	RK3038	Chip R, MCR03 EZHJ102
R609	RK3056	Chip R, MCR03 EZHJ333



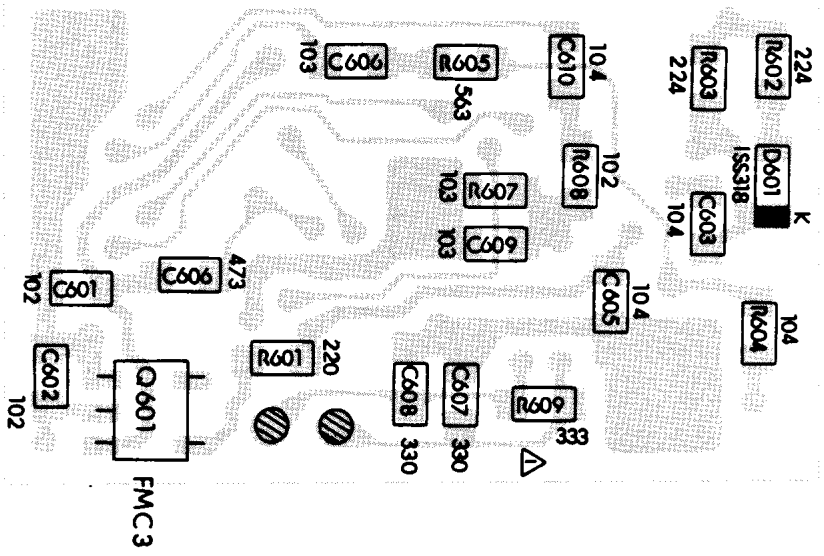
DTMF PC BOARD

EJ-20U

Side A



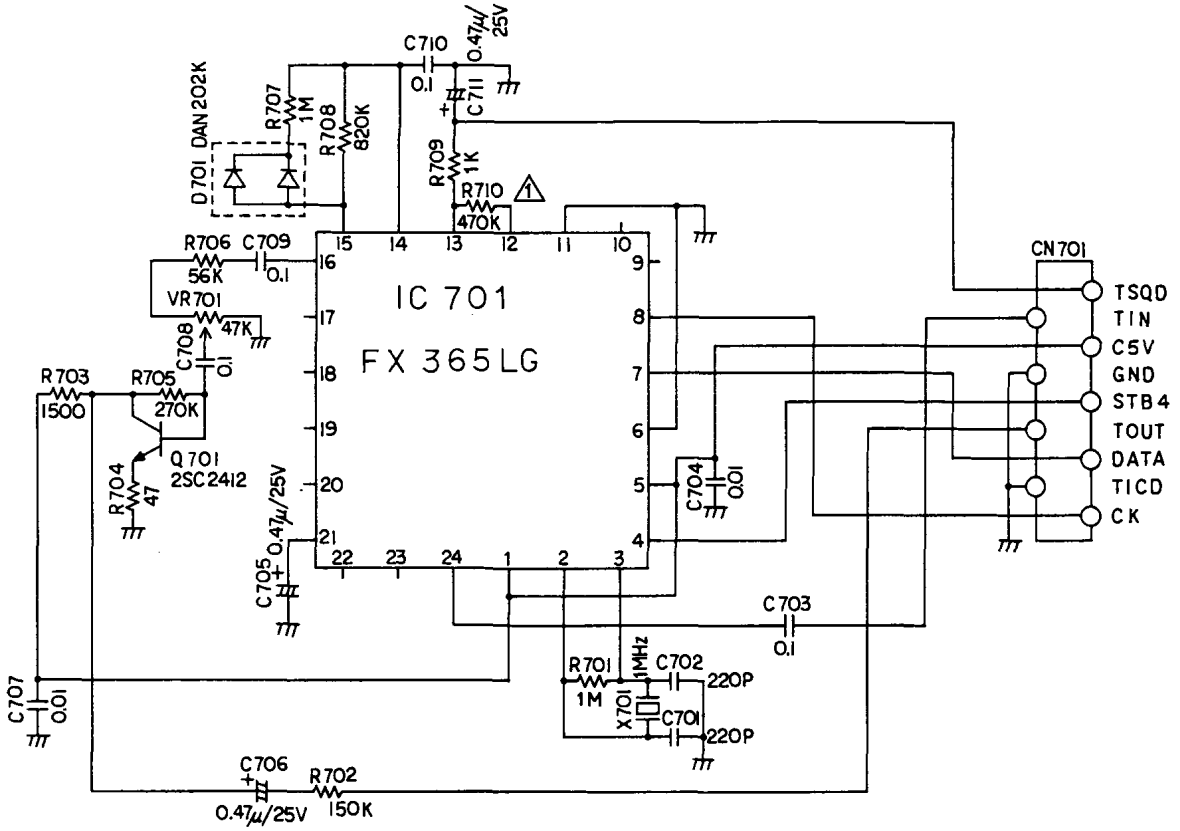
Side B



EJ-12U (TONE SQUELCH UNIT)

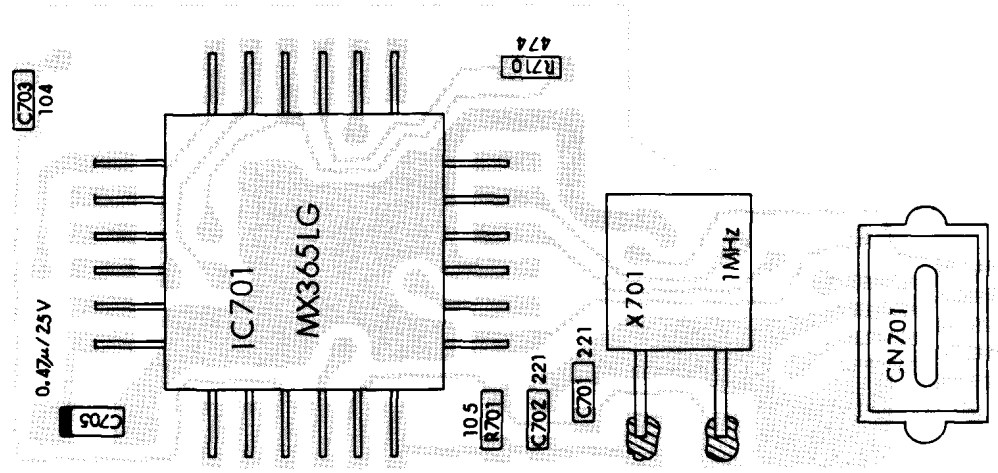
Ref. No.	Part Code	Part Name and Number
IC701	XA0163	IC, FX365LG/TR
Q701	XT0037	Transistor, 2SC2412K T96R
D701	XD0040	Diode, DAN202K T96R
VR701	RH0060	VR, MVR32 HXBRN473
X701	XB0006	X'tal CSB1000J221
CN701	UE0132	Connector, DF9A-9P-1V(22)
C701	CU3060	Chip C, CM105CH221K
C702	CU3060	Chip C, CM105CH221K
C703	CU3059	Chip C, CM105Y5V104Z
C704	CU3047	Chip C, CM105W5R103K
C705	CS0060	Chip C, TMC1E474TR

Ref. No.	Part Code	Part Name and Number
C706	CS0060	Chip C, TMC1E474TR
C707	CU3047	Chip C, CM105W5R103K
C708	CU3059	Chip C, CM105Y5V104Z
C709	CU3059	Chip C, CM105Y5V104Z
C710	CU3059	Chip C, CM105Y5V104Z
C711	CS0060	Chip C, TMC1E474TR
R701	RK3074	Chip R, MCR03EZHJ105
R702	RK3064	Chip R, MCR03EZHJ154
R703	RK3036	Chip R, MCR03EZHJ152
R704	RK3022	Chip R, MCR03EZHJ470
R705	RK3067	Chip R, MCR03EZHJ274
R706	RK3059	Chip R, MCR03EZHJ563
R707	RK3074	Chip R, MCR03EZHJ105
R708	RK3073	Chip R, MCR03EZHJ824
R709	RK3038	Chip R, MCR03EZHJ102
R710	RK3070	Chip R, MCR03EZHJ474

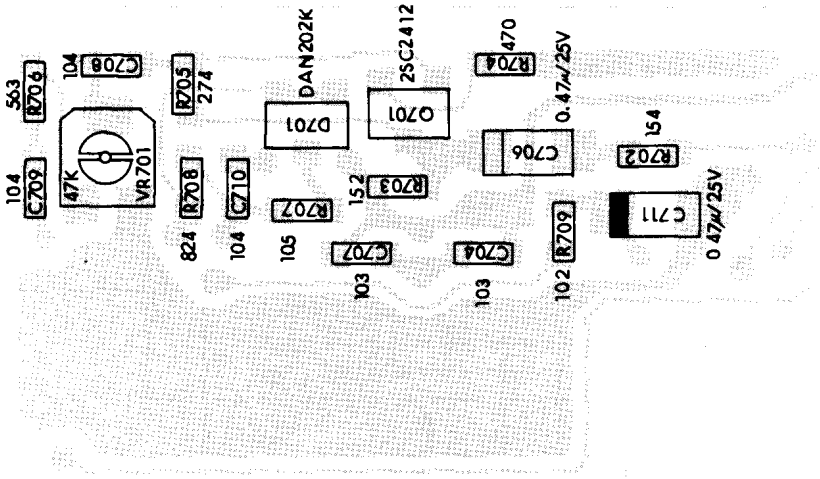


TONE SQUELCH UNIT PC BOARD

Side A



Side B



EDC-34 (QUICK CHARGER 120V)

Ref. No.	Part Code	Part Name and Number
R1		Registor, 0.2W 4.7KΩ
R2		Registor, 0.2W 1.5KΩ
R3		Registor, 0.2W 10KΩ
R4		Registor, 0.2W 6.8KΩ
R5		Registor, 1W 0.1Ω
R6		Registor, 1W 1.2KΩ
R7		Registor, 0.2W 680Ω
R8		Registor, 0.2W 100Ω
R9		Registor, 0.2W 1.5KΩ
R10		Registor, 0.2W 27KΩ
R11		Registor, 0.2W 3.3KΩ
R12		Registor, 0.2W 220Ω
R13		Registor, 0.2W 100Ω
R14		Registor, 0.2W 220Ω
R15		Registor, 0.2W 130Ω
R16		Registor, 1W 680Ω
R17		Registor, 0.2W 12Ω
R18		Registor, 0.2W 12Ω
R19		Registor, 1W 0.22Ω
R20		Registor, 0.2W 10KΩ
R21		Registor, 0.5W 2.7KΩ
R22		Registor, 0.5W 2.7KΩ
R23		Registor, 0.2W 10KΩ
R24		Registor, 0.2W 10KΩ
R25		Registor, 0.2W 33KΩ
R26		
R27		Registor, 0.2W 33KΩ
R28		Registor, 0.2W 39KΩ
R29		Registor, 0.2W 47KΩ
R30		Registor, 0.2W 22KΩ
R31		Registor, 0.2W 10KΩ
R32		Registor, 0.2W 3.3KΩ
R33		Registor, 0.2W 10KΩ
R34		Registor, 0.2W 10KΩ
R35		Registor, 0.2W 2.7KΩ
R36		Registor, 0.2W 5.6KΩ
R37		Registor, 0.2W 3.3KΩ
R38		Registor, 0.2W 3.3KΩ
R39		Registor, 0.2W 1MΩ
R40		Registor, 0.2W 1.5KΩ
R41		Registor, 0.2W 47KΩ
R42		Registor, 0.2W 10KΩ
R43		Registor, 0.2W 10KΩ
R44		Registor, 0.2W 2.7KΩ
R45		Registor, 0.2W 5.6KΩ
R46		Registor, 0.2W 2.7KΩ
R47		Registor, 0.2W 5.6KΩ
R48		Registor, 0.2W 3.3KΩ
R49		Registor, 0.2W 3.3KΩ
R50		Registor, 0.2W 3.3KΩ

Ref. No.	Part Code	Part Name and Number
R51		Registor, 0.2W 3.3KΩ
R52		Registor, 0.2W 10KΩ
C1		Ceramic Condencer, 50V 1μF
C2		Electric Condencer, 35V 470μF
C3		Film Condencer, 50V 821μF
C4		Ceramic Condencer, 50V 101pF
C5		Electric Condencer, 35V 220μF
C6		Ceramic Condencer, 50V 104pF
C7		Ceramic Condencer, 50V 101pF
C8		Electric Condencer, 16V 100μF
C9		Electric Condencer, 35V 220μF
C10		Ceramic Condencer, 50V 1μF
C12		Ceramic Condencer, 50V 470pF
C13		Ceramic Condencer, 50V 470pF
D1		Diode, 40V 2.5A
D2		Diode, 40V 2.5A
D3		Diode, 40V 100mA
D4		Diode, 40V 100mA
D5		Diode, 40V 2.5A
D6		Diode, 40V. 100mA
D7		Diode, 40V 100mA
D8		Diode, 40V 100mA
D9		Diode, 40V 100mA
D10		Diode, 100V 2A
D11		Diode, 40V 100mA
D12		Diode, 40V 100mA
D13		Diode, 40V 100mA
D14		Diode, 40V 100mA
D15		Diode, 40V 100mA
D16		Diode, 100V 2A
D17		Diode, 40V 100mA
D18		Diode, 40V 2A
D19		Diode, 40V 100mA
Z1		Zenner Diode, 400mW 9V
Q1		Transistor, PNP 40V 100mA
Q2		Transistor, PNP 40V 100mA
Q3		Transistor, NPN 40V 100mA
Q4		Transistor, NPN 80V 3A
Q5		Transistor, PNP 40V 100mA
Q6		Transistor, PNP 40V 100mA
Q7		Transistor, PNP 60V 5A
Q8		Transistor, NPN 40V 100mA
Q9		Transistor, NPN 40V 100mA
Q10		Transistor, NPN 40V 100mA
Q11		Transistor, PNP 40V 100mA

Ref. No.	Part Code	Part Name and Number
Q12		Transistor, NPN 40V 100mA
Q13		Transistor, PNP 40V 100mA
Q14		Transistor, NPN 40V 100mA
Q15		Transistor, PNP 40V 100mA
Q16		Transistor, PNP 40V 100mA
IC1		Regulator,
IC2		Regulator,
IC3		Regulator,
IC4		Regulator,
IC5		IC
IC6		CPU
X1		Oscillater, 2.0MHz
L1		Coil, 2A 180μH
L2		Coil, 1A 200μH
L3		Ferrite Beads
LED1		LED
LED2		LED
		LED, Spacer
CN1		Jack
CN2		Jack
CN3		Terminal
CN4		Terminal
CN5		Terminal
CN6		Terminal
F1		Fuse, 3.15A 125VULCSA
JP1		Cable, Φ0.6 ×10mm
JP2		Cable, Φ0.6 ×10mm
JP3		Cable, Φ0.6 ×15mm
JP4		Cable, Φ0.6 ×7.5mm
JP5		Cable, Φ0.6 ×5mm
JP6		Cable, Φ0.6 ×12.5mm
JP7		Cable, Φ0.6 ×10mm
JP8		Cable, Φ0.6 ×10mm
JP9		Cable, Φ0.6 ×5mm
JP10		Cable, Φ0.6 ×5mm
JP11		Cable, Φ0.6 ×5mm
JP12		Cable, Φ0.6 ×10mm
JP13		Cable, Φ0.6 ×12.5mm
JP14		Cable, Φ0.6 ×10mm
JP15		Cable, Φ0.6 ×7.5mm
JP16		Cable, Φ0.6 ×5mm
JP17		Cable, AWG24 ×20mm

EDC-35 (QUICK CHARGER 220V)

Ref. No.	Part Code	Part Name and Number
R1		Registor, 0.2W 4.7KΩ
R2		Registor, 0.2W 1.5KΩ
R3		Registor, 0.2W 10KΩ
R4		Registor, 0.2W 6.8KΩ
R5		Registor, 1W 0.1Ω
R6		Registor, 1W 1.2KΩ
R7		Registor, 0.2W 680Ω
R8		Registor, 0.2W 100Ω
R9		Registor, 0.2W 1.5KΩ
R10		Registor, 0.2W 27KΩ
R11		Registor, 0.2W 3.3KΩ
R12		Registor, 0.2W 220Ω
R13		Registor, 0.2W 100Ω
R14		Registor, 0.2W 220Ω
R15		Registor, 0.2W 130Ω
R16		Registor, 1W 680Ω
R17		Registor, 0.2W 12Ω
R18		Registor, 0.2W 12Ω
R19		Registor, 1W 0.22Ω
R20		Registor, 0.2W 10KΩ
R21		Registor, 0.5W 2.7KΩ
R22		Registor, 0.5W 2.7KΩ
R23		Registor, 0.2W 10KΩ
R24		Registor, 0.2W 10KΩ
R25		Registor, 0.2W 33KΩ
R26		
R27		Registor, 0.2W 33KΩ
R28		Registor, 0.2W 39KΩ
R29		Registor, 0.2W 47KΩ
R30		Registor, 0.2W 22KΩ
R31		Registor, 0.2W 10KΩ
R32		Registor, 0.2W 3.3KΩ
R33		Registor, 0.2W 10KΩ
R34		Registor, 0.2W 10KΩ
R35		Registor, 0.2W 2.7KΩ
R36		Registor, 0.2W 5.6KΩ
R37		Registor, 0.2W 3.3KΩ
R38		Registor, 0.2W 3.3KΩ
R39		Registor, 0.2W 1MΩ
R40		Registor, 0.2W 1.5KΩ
R41		Registor, 0.2W 47KΩ
R42		Registor, 0.2W 10KΩ
R43		Registor, 0.2W 10KΩ
R44		Registor, 0.2W 2.7KΩ
R45		Registor, 0.2W 5.6KΩ
R46		Registor, 0.2W 2.7KΩ
R47		Registor, 0.2W 5.6KΩ
R48		Registor, 0.2W 3.3KΩ
R49		Registor, 0.2W 3.3KΩ
R50		Registor, 0.2W 3.3KΩ

Ref. No.	Part Code	Part Name and Number
R51		Registor, 0.2W 3.3KΩ
R52		Registor, 0.2W 10KΩ
C1		Ceramic Condencer, 50V 1μF
C2		Electric Condencer, 35V 470μF
C3		Film Condencer, 50V 821μF
C4		Ceramic Condencer, 50V 101pF
C5		Electric Condencer, 35V 220μF
C6		Ceramic Condencer, 50V 104pF
C7		Ceramic Condencer, 50V 101pF
C8		Electric Condencer, 16V 100μF
C9		Electric Condencer, 35V 220μF
C10		Ceramic Condencer, 50V 1μF
C12		Ceramic Condencer, 50V 470pF
C13		Ceramic Condencer, 50V 470pF
D1		Diode, 40V 2.5A
D2		Diode, 40V 2.5A
D3		Diode, 40V 100mA
D4		Diode, 40V 100mA
D5		Diode, 40V 2.5A
D6		Diode, 40V 100mA
D7		Diode, 40V 100mA
D8		Diode, 40V 100mA
D9		Diode, 40V 100mA
D10		Diode, 100V 2A
D11		Diode, 40V 100mA
D12		Diode, 40V 100mA
D13		Diode, 40V 100mA
D14		Diode, 40V 100mA
D15		Diode, 40V 100mA
D16		Diode, 100V 2A
D17		Diode, 40V 100mA
D18		Diode, 40V 2A
D19		Diode, 40V 100mA
Z1		Zenner Diode, 400mW 9V
Q1		Transistor, PNP 40V 100mA
Q2		Transistor, PNP 40V 100mA
Q3		Transistor, NPN 40V 100mA
Q4		Transistor, NPN 80V 3A
Q5		Transistor, PNP 40V 100mA
Q6		Transistor, PNP 40V 100mA
Q7		Transistor, PNP 60V 5A
Q8		Transistor, NPN 40V 100mA
Q9		Transistor, NPN 40V 100mA
Q10		Transistor, NPN 40V 100mA
Q11		Transistor, PNP 40V 100mA

Ref. No.	Part Code	Part Name and Number
Q12		Transistor, NPN 40V 100mA
Q13		Transistor, PNP 40V 100mA
Q14		Transistor, NPN 40V 100mA
Q15		Transistor, PNP 40V 100mA
Q16		Transistor, PNP 40V 100mA
IC1		Regulator,
IC2		Regulator,
IC3		Regulator,
IC4		Regulator,
IC5		IC
IC6		CPU
X1		Oscillater, 2.0MHz
L1		Coil, 2A 180μH
L2		Coil, 1A 200μH
L3		Ferrite Beads
LED1		LED
LED2		LED
		LED, Spacer
CN1		Jack
CN2		Jack
CN3		Terminal
CN4		Terminal
CN5		Terminal
CN6		Terminal
F1		Fuse, 3.15A 125VULCSA
JP1		Cable, Φ0.6 ×10mm
JP2		Cable, Φ0.6 ×10mm
JP3		Cable, Φ0.6 ×15mm
JP4		Cable, Φ0.6 ×7.5mm
JP5		Cable, Φ0.6 ×5mm
JP6		Cable, Φ0.6 ×12.5mm
JP7		Cable, Φ0.6 ×10mm
JP8		Cable, Φ0.6 ×10mm
JP9		Cable, Φ0.6 ×5mm
JP10		Cable, Φ0.6 ×5mm
JP11		Cable, Φ0.6 ×5mm
JP12		Cable, Φ0.6 ×10mm
JP13		Cable, Φ0.6 ×12.5mm
JP14		Cable, Φ0.6 ×10mm
JP15		Cable, Φ0.6 ×7.5mm
JP16		Cable, Φ0.6 ×5mm
JP17		Cable, AWG24 ×20mm

■BLOCK DIAGRAM